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ABSTRACT

This annotated bibliography contains abstracts of 99 studies conducted in the area of test anxiety. Evaluations of the studies are presented in a format which allows comparison of the studies to be made. Information about each study includes: (1) a description of subjects; (2) the type of intervention or treatment used; (3) the dependent measures; (4) statistics used to analyze the data; (5) results of the study; (6) methodological problems; and (7) conclusions and implications. Also included is a bibliography of books and book chapters which deal with test anxiety and/or academic anxiety. (Author/NRB)

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TEST ANXIETY: AN ANNOTATED BIBLIOGRAPHY

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INDEX OF ABBREVIATIONS

AAT	Achievement Anxiety Test
ACT	American College Test
AD	Anxiety Differential
AMT	Anxiety Management Training
ANOVA	Analysis of Variance
CAMS	Children's Achievement Motivation Scale
CIQ	Cognitive Interference Questionnaire
Cont.	Control
DAT	Differential Aptitude Test
E or Exp.	Experimental or Experimenter
EMG	Electromyograph
EPI	Eysenck Personality Inventory
EST	Effective Study Test
F-D	Facilitative minus Debilitative score of AAT
FSS	Fear Survey Scale
GAS	General Anxiety Scale
GASC	General Anxiety Scale for Children
GM	Gates-McGinnite Reading Test
GPA	Grade Point Average
HS	High School
IBT	Irrational Beliefs Test
Intro.	Introductory
IPAT	IPAT Anxiety Scale
Kohs	Kohs Block Design Tests
LP	Lack of Protection
MAACL	Multiple Affect Adjective Check List
MANOVA	Multivariate Analysis of Variance
MMPI	Minnesota Multiphasic Personality Inventory
MPI	Maudsley Personality Inventory
N	Number
Otis-Lennon	Otis-Lennon Mental Ability Test
Pos.	Positive
PSP	Palmar Sweat Print
Psych.	Psychology or Psychological
Py	Psychological Mindedness
R-E	Rational-Emotive Therapy
SADS	Social Avoidance and Distress Scale
SAI or STAI	State Trait Anxiety Inventory
SAT	Scholastic Achievement Test
SCAT	School and College Ability Test
SD	Systematic Desensitization
SDS	Edward's Social Desirability Scale
Sign.	Significantly
SMT	Stress Management Training
S-R	S-R Inventory of Anxiousness
Ss	Subjects
SSHA	Scale of Study Habits and Attitudes
STABS	Suinn Test Anxiety Behavioral Scale

STEP	Standardized Tests of Educational Process
SUDS	Subjective Discomfort Scale
TA	Test Anxiety
TABS	Test Anxiety Behavior Scale
TAQ	Test Anxiety Questionnaire
TAS	Test Anxiety Scale
TASC	Test Anxiety Scale for Children
TMAS	Taylor Manifest Anxiety Scale
Trmt.	Treatment
WAIS	Wechsler Adult Intelligence Scale
WB	Sense of Well Being
W-E	Worry-Emotionality
WISC	Wechsler Intelligence Scale for Children
WPT	Wonderlic Personnel Test
WRAT	Wide Range Achievement Test

AUTHOR(S): Allen, G. J.
TITLE: Effectiveness of study counseling and desensitization in alleviating test anxiety in college students
SOURCE: Journal of Abnormal Psychology, 1971, 77(3), 282-289.

SUBJECTS

Sex: 36 males, 39 females
Volunteer/Psychology students: Psychology Ss
Number: 75
ID of controls: Same
Criteria for inclusion in study: Volunteers who underwent interview and made a monetary deposit

TREATMENT/INTERVENTION

Number of sessions: 7
Length of sessions: 90 minutes, weekly
Special instructions/rationale: No

Methods/Intervention: 1. Desensitization 2. Study Counseling 3. Desensitization plus Study Counseling 4. Placebo Procedure 5. Testing Control (didn't expect trmt.) 6. Minimal Contact Control (expected eventual trmt.)

Group/Individual: Group
Homework Assigned: Yes - asked to rate concentration while studying

MEASUREMENTS

Dependent Variables: 1. Anxiety Differential (AD) 2. AAT 3. STAI-T
4. STAI-S 5. TAS 6. Maudsley Pers. Inventory (MPI) 7. Pulse rate
8. Palmar Sweat Print (PSP) 9. GPA 10. Course grade (post only)

Followup: Yes - 5 weeks post treatment (right before final exams)

Check on Homework: Not mentioned

RESULTS

All E treatments = on self-report measures, E treatment groups better than controls on most measures. Desen. plus Study Coun. significantly better grades than Desensitization alone or Study Counseling alone. Study Counseling alone lower pulse and PSP than Desensitization alone.

Statistics Used: Analysis of variance

OTHER ISSUES

Attrition: None mentioned
Incentives to Ss: Monetary deposit made and returned if attended all sessions.
Methodological Problems: Sound study - good use of multiple measures (self-report, performance, and physiological)

CONCLUSIONS/IMPLICATIONS

All three treatments better than placebo or controls. True for physiological, self-report and performance measures. Combination group superior to either treatment alone. No sex differences. Study skills needs to be considered when treating test anxiety.

AUTHOR(S): Alpert, R. & Haber, R. N.
TITLE: Anxiety in academic achievement situations
SOURCE: Journal of Abnormal and Social Psychology, 1960, 61(2), 207-215.

SUBJECTS

Sex: Males only
Volunteer/Psychology students: Psychology students
Number: 323
ID of controls: None
Criteria for inclusion in study: Class membership in psychology courses.

TREATMENT/INTERVENTION

Number of sessions: 1
Length of sessions: Not mentioned
Special instructions/rationale: Ss were not aware they were participating in test anxiety study.
Methods/Intervention: Ss completed a battery of tests which were later correlated.

Group/Individual: Group
Homework Assigned: Not relevant

MEASUREMENTS

Dependent Variables: 1. TMAS 2. Welsh Anxiety Index 3. Freeman Anxiety Scale 4. TAS 5. AAT 6. SAT 7. GPA 8. Final Exam 9. Midterm Exam 10. Course Grade
Followup: No
Check on Homework: Not relevant

RESULTS

Specific tests (i.e., TAS and AAT) re: test anxiety were better predictors of academic performance than were general anxiety measures.
TAS predictive of exam scores but not overall GPA.
AAT predictive of both exam scores and GPA.

Statistics Used: Correlation

OTHER ISSUES

Attrition: Not relevant
Incentives to Ss: Not mentioned
Methodological Problems: Merely a correlational study

CONCLUSIONS/IMPLICATIONS

Specific test anxiety scales better at predicting performance decrements than general anxiety scales. Test anxiety scales (TAS and AAT) seem to be measuring something beyond general anxiety.

AUTHOR(S): Anton, W. D.
TITLE: An evaluation of process and outcome variables in the systematic desensitization of test anxiety.
SOURCE: Behaviour Research and Therapy, 1976, 14, 217-224.*

SUBJECTS

Sex: 26 males, 28 females
Volunteer/Psychology students: volunteers
Number: 54
ID of controls: same
Criteria for inclusion in study: TAS & GPA used for matching groups

TREATMENT/INTERVENTION

Number of sessions: 8 over 4 weeks (counseling group only met 4 times over the 4 weeks)
Length of sessions: 1 hour
Special instructions/rationale: audiotaped SD

Methods/Intervention: 1. Systematic Desensitization (SD) 2.. Group Counseling
3. No Treatment Control

Group/Individual: Group
Homework Assigned: None mentioned

MEASUREMENTS

Dependent Variables: 1. TAS (pre-post) 2. GPA (pre-post) 3. STAI (pre-post)
4. Test hierarchy aversiveness 5. Ratings of muscular relaxation
6. STAI-state during SD procedure

Followup: None
Check on Homework: Not reported

RESULTS

SD less test anxiety than Counseling or Control on TAS & Hierarchy Aversiveness
SD = Counseling = Control on STAI (pre-post) & GPA (pre-post)
Ratings of muscular relax. & STAI-state during procedure decreased in SD group from pre to post

Statistics Used: appropriate

OTHER ISSUES

Attrition: Not reported
Incentives to Ss: Not mentioned
Methodological Problems: SD and Group Counseling didn't receive equal amount of treatment (8 sessions vs. 4 sessions, respectively)

CONCLUSIONS/IMPLICATIONS

Only significance found with self-report measures.
GPA was not affected.

*Also reported in Spielberger, Anton, Bedell. The nature and treatment of test anxiety. In Zuckerman & Spielberger (Eds.), Emotions and Anxiety. Hillsdale, NJ: Lawrence Erlbaum Associates, 1976, 317-347.

AUTHOR(S): Aponte, J. F. & Aponte, C. E.
TITLE: Group preprogrammed systematic desensitization without the simultaneous presentation of aversive scenes with relaxation training
SOURCE: Behaviour Research and Therapy, 1971, 9, 337-346.

SUBJECTS

Sex: 35 males, 35 females
Volunteer/Psychology students: freshmen in English Composition class
Number: 70
ID of controls: from same class
Criteria for inclusion in study: top 25% on STABS, Modified TMAS, and interview to rule out psychopathology

TREATMENT/INTERVENTION

Number of sessions: 5 weekly
Length of sessions: not mentioned
Special instructions/rationale: standard SD rationale; used 22-item standardized hierarchy
Methods/Intervention: 1. preprogrammed systematic desensitization (SD) with standardized procedures 2. SD with scenes presented prior to muscular relaxation 3. relaxation training only 4. no-treatment control*

Group/Individual: group
Homework Assigned: none mentioned

MEASUREMENTS

Dependent Variables: 1. STABS (pre-post) 2. Modified TAQ (pre-post) 3. 5 items from S-R scale (pre-post) 4. Fear Survey Schedule (FSS) (pre-post) 5. course grade (post) 6. GPA (post) 7. success expectancies on exams (pre-post)
Followup: no
Check on Homework: none reported

RESULTS

On STABS, both SD groups reported less test anxiety pre-post than the relaxation or control groups.
No difference among groups for TAQ, S-R, FSS, GPA, course grade.
The modified SD procedure (Group 2) showed greater increase in expectancies pre to post than did other groups.

Statistics Used: Analysis of variance of difference scores
Tested for and found no therapists' effects

OTHER ISSUES

Attrition: none mentioned
Incentives to Ss: not mentioned
Methodological Problems: Used paired comparisons without achieving overall significant F value. Relatively weak findings and only STABS of all other anxiety measures showed any change.

CONCLUSIONS/IMPLICATIONS

That both SD procedures produced = results, suggests that counter-conditioning theory of SD may be wrong - more supportive of extinction or inhibitory conditioning theory of SD.

*Subjects matched across groups on ACT scores, size of high school attended, and major field of study.

AUTHOR(S): Bajtelsmit, J. W. & Gershman, L.
TITLE: Covert positive reinforcement: Efficacy and conceptualization
SOURCE: Journal of Behavior Therapy & Experimental Psychiatry, 1976, 7, 207-212.

SUBJECTS

Sex: males and females
Volunteer/Psychology students: advertised on campus and in class for volunteers
Number: 54
ID of controls: those unavailable during treatment times
Criteria for inclusion in study: Test Anxiety Behavior Scale (TABS) (Gershman & Bajtelsmit, 1973)

TREATMENT/INTERVENTION

Number of sessions: 4 over two weeks
Length of sessions: 1/2 hour
Special instructions/rationale: none mentioned

Methods/Intervention: 1. Covert Pos. Reinforcement (rein. after desired behavior)
2. Covert Pos. Reinforcement (rein. after anxious behavior) 3. Attention Focusing (AF) 4. Group 1 only a distracting tone followed rein. 5. Group 2 only a distracting tone followed rein. 6. No Treatment control

Group/Individual: group
Homework Assigned: none reported

MEASUREMENTS

Dependent Variables: 1. WPT (pre-post) 2. GPA (pre-post) 3. TABS (pre-post)
4. AAT (pre-post) 5. Anxiety Differential Measure of Exam Anxiety (AD) (pre-post)

Followup: no
Check on Homework: none mentioned

RESULTS

On WPT & GPA only Groups 5 & 3 showed improvement pre to post.
All 5 treatment groups showed improvement on self-report measures compared to control group.

Statistics Used: t values computed for each group pre to post. Analysis of covariance on post scores with pre scores as covariates.

OTHER ISSUES

Attrition: none mentioned
Incentives to Ss: \$5.00 if completed study
Methodological Problems:

Groups were not equivalent on GPA at pretest (Control group had sign. lower GPA initially). Control group not randomly selected.

CONCLUSIONS/IMPLICATIONS

Improvement largely shown with self-report measures and only minimally with performance measures.
Since the variants of covert pos. reinforcement were just as effective as standard procedure, an operant conditioning theoretical basis is questioned.

AUTHOR(S): Bedell, J. R.
TITLE: Systematic desensitization, relaxation training, and suggestion in the treatment of text anxiety
SOURCE: Behaviour Research and Therapy, 1976, 14, 309-311.*

SUBJECTS

Sex: Not reported
Volunteer/Psychology students: volunteers
Number: 50
ID of controls: Those who had scheduling problems
Criteria for inclusion in study: TAS and WPT used as matching variables.

TREATMENT/INTERVENTION

Number of sessions: 7 (two a week)
Length of sessions: 1 hour
Special instructions/rationale:

Methods/Intervention: 2 (SD, Relax. only) x 2 (High expectancy, neutral expectancy) plus 1 (No treatment control)

Group/Individual: group
Homework Assigned: not reported

MEASUREMENTS

Dependent Variables: 1. TAS (pre-post) 2. WPT (pre-post) 3. WRAT (Arithmetic score) (pre-post)

Followup: no
Check on Homework: not reported

RESULTS

On TAS, combined SD & Relax. groups showed less anxiety than control from pre to post. No diff. between combined trmts. & control on STAI, WPT, or WRAT. SD groups = Relax. groups for all 4 measures. There was also no effect for the expectancy manipulation.

Statistics Used: appropriate

OTHER ISSUES

Attrition: not reported
Incentives to Ss: not reported
Methodological Problems:
Control group not randomly selected.

CONCLUSIONS/IMPLICATIONS

Only one self-report measure (TAS) of 2 showed change. Neither performance measure was effected. Relaxation alone is just as effective as SD.

*Also reported in Spielberger, Anton, & Bedell. The nature and treatment of text anxiety. In Zuckerman & Spielberger (Eds.), Emotions and Anxiety, Hillsdale, NJ: Lawrence Erlbaum Associates, 1976, 317-345.

AUTHOR(S): Biglan, A., Villwock, C., & Wick, S.
TITLE: The feasibility of a computer controlled program for the treatment of test anxiety.
SOURCE: Journal of Behavior Therapy & Experimental Psychiatry, 1979, 10, 47-49.

SUBJECTS

Sex: Not mentioned
Volunteer/Psychology students: volunteers
Number: 15 (only 9 completed program)
ID of controls: none used
Criteria for inclusion in study: Upper 25% on STABS (score of 142 or above)

TREATMENT/INTERVENTION

Number of sessions: Varied for individual, but mean of 4 sessions for desensitization.
Length of sessions: varied
Special instructions/rationale: traditional SD rationale

Methods/Intervention: Audiotaped relaxation training followed by computer controlled desensitization (used standard 20-item hierarchy).

Group/Individual: individual
Homework Assigned: yes - relaxation training was learned largely on own

MEASUREMENTS

Dependent Variables: STABS (pre-post)
Self-rating scales on anxiety during tests (post only)

Followup: no
Check on Homework: none mentioned

RESULTS

Significant pre to post changes on STABS, showing less anxiety. Self-rating scales at posttest (Ss asked to remember back and compare against how anxious felt before treatment) yielded less test anxiety.

Statistics Used: Since no control group was used, all analyses used Ss as own control. The rating scales were not statistically analyzed, only means presented.

OTHER ISSUES

Attrition: high - 6 of 15 Ss dropped out before treatment completed.

Incentives to Ss: none mentioned

Methodological Problems: Only most motivated Ss stayed in program
No control group
Low N

CONCLUSIONS/IMPLICATIONS

Only used self-report data

This computer programmed treatment requires very little therapist/experimenter time, only an average of two hours of time per subject. With the high attrition rate, however, Ss may have to be highly motivated to use the program.

AUTHOR(S): Bistline, J. L., Jaremko, M. E., & Sobleman, S.
TITLE: The relative contributions of covert reinforcement and cognitive restructuring to test anxiety reduction
SOURCE: Journal of Clinical Psychology, 1980, 36(3), 723-728.

SUBJECTS

Sex: males and females
Volunteer/Psychology students: undergraduate psychology students
Number: 42
ID of controls: same
Criteria for inclusion in study: 22 or more on TAS

TREATMENT/INTERVENTION

Number of sessions: five
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: 1. Covert modeling 2. Cognitive restructuring 3. Combination group 4. Waiting list control (WLC)

Group/Individual: group
Homework Assigned: not mentioned

MEASUREMENTS

Dependent Variables: 1. TAS 2. STABS 3. Cognitive questionnaire (devised by authors) 4. STAI 5. Test grades

Followup: 2 months
Check on Homework: not mentioned

RESULTS

On STAI all three treatment groups lower than WLC. No differences found on test grades or cognitive questionnaire. On TAS, the covert modeling group and combination group was better than other two groups. All three treatment groups did better than WLC on the STABS.

Statistics Used: 2 x 4 repeated measures ANOVA

OTHER ISSUES

Attrition: 3 of 42
Incentives to Ss: not mentioned
Methodological Problems: Significant findings are all on self-report measures.

CONCLUSIONS/IMPLICATIONS

The authors feel that cognitive restructuring may work by "the mechanisms of covert rehearsal and response relevant covert positive reinforcement."

AUTHOR(S): Chang-Liang, R. & Denney, D. R.
TITLE: Applied relaxation as training in self-control
SOURCE: Journal of Counseling Psychology, 1976, 23(3), 183-189.

SUBJECTS

Sex: males and females
Volunteer/Psychology students: Psychology students
Number: 81
ID of controls: same
Criteria for inclusion in study: Upper 1/3 of TAQ for test anxiety, Median split on STAI-Trait used to divide into high and low general anxiety groups

TREATMENT/INTERVENTION

Number of sessions: 3 weekly
Length of sessions: 45 minutes
Special instructions/rationale:

Methods/Intervention: 2 (High General Anxiety, Low General Anxiety) x 4 (Systematic Desensitization, Applied Relaxation Training, Relaxation Training with traditional rationale, No Treatment Control)

Group/Individual: group
Homework Assigned: only Applied Relaxation group told to apply training to in vivo situations

MEASUREMENTS

Dependent Variables: 1. STAI-Trait (pre-post) 2. IPAT Anxiety Scale (pre-post)
3. Fear Survey Schedule Total Score (pre-post) 4. STABS (pre-post)
5. STAI-State (pre-post) 6. WPT
Followup: no
Check on Homework: none reported

RESULTS

No difference among groups on STABS. For STAI-State, Applied Relaxation significantly less anxious than Control. On WPT Applied Relaxation significantly better score than all 3 other groups. On STAI-Trait and IPAT, Applied Relaxation significantly less anxious than traditional Relaxation and Control.

Statistics Used: 2 x 4 covariance with pretest scores as covariates

OTHER ISSUES

Attrition: none mentioned
Incentives to Ss: not reported
Methodological Problems: Only used three sessions; this may not have been enough time for SD to work. SD & AR groups given different rationales. Possible that AR group practiced at home & thus had more practice with procedure.

CONCLUSIONS/IMPLICATIONS

Relaxation training with an applied rationale is more effective than relaxation training without applied rationale.

AUTHOR(S): Comer, J. F. & Denney, D. R.
TITLE: Meditation and relaxation in the treatment of test anxiety
SOURCE: Paper presented at the American Psychological Association meeting, Montreal, 1980.

SUBJECTS

Sex: not mentioned
Volunteer/Psychology students: college students
Number: 60
ID of controls: same
Criteria for inclusion in study: unclear - "test anxious college students"

TREATMENT/INTERVENTION

Number of sessions: three
Length of sessions: one hour
Special instructions/rationale: 1/2 asked to apply technique, half not asked to do so
Methods/Intervention: 1. Applied Meditation (AM) 2. Meditation Only (MO)
3. Applied Relaxation (AR) 4. Relaxation Only (RO) 5. Waiting List Control (WLC)

Group/Individual: group
Homework Assigned: twice daily - 15 minutes per practice session

MEASUREMENTS

Dependent Variables: 1. FSS 2. AAT 3. Self-report ratings of test anxiety
4. Wonderlic Anagrams Test (modified WPT) 5. GPA 6. Expectancy scores

Followup: yes - GPA at end of semester (3 week post-test)
Check on Homework: none mentioned

RESULTS

No diff. among groups on expectancies pre-treatment. At post-test no significant diff. among groups any of the self-report measures. On the Wonderlic, the MO and AR groups significantly increased scores over AM and WLC groups. At followup, all groups combined better than WLC on facilitative score of AAT. No diff. for GPA.

Statistics Used: Post and Followup scores adjusted for pretest, then ANOVA performed

OTHER ISSUES

Attrition: not mentioned
Incentives to Ss: not mentioned
Methodological Problems: Unusually few treatment sessions (3). Otherwise strong methodologically.

CONCLUSIONS/IMPLICATIONS

Very unusual to find results for performance measure but not for self-report measures. It appears application instructions may be important for relaxation training but not for meditation. Generally weak results considering number of dependent variables.

AUTHOR(S): Cornish, R. D. & Dilley, J. S.
TITLE: Comparison of three methods of reducing test anxiety: Systematic desensitization, implosive therapy, and study counseling
SOURCE: Journal of Counseling Psychology, 1973, 20(6), 499-503.

SUBJECTS

Sex: 12 males, 27 females
Volunteer/Psychology students: combination of volunteers and referrals
Number: 39
ID of controls: same
Criteria for inclusion in study: interview

TREATMENT/INTERVENTION

Number of sessions: four (over 2 weeks)
Length of sessions: one hour
Special instructions/rationale:

Methods/Intervention: 1. Study Skills group 2. Systematic Desensitization
3. Implosive Therapy 4. No Treatment Control

Group/Individual: group
Homework Assigned: none mentioned

MEASUREMENTS

Dependent Variables: 1. AAT (post-test only) 2. Finger sweat print (post-test only)
3. GPA (pre-post)

Followup: no
Check on Homework: none mentioned

RESULTS

No group diff. on finger sweat print, GPA, or AAT facilitating. However, on AAT debilitating SD lower than all three of the other groups. Also, the implosive group scored lower than the control group.

Statistics Used: ANOVA

OTHER ISSUES

Attrition: none mentioned
Incentives to Ss: none mentioned
Methodological Problems: No pre-test measures of anxiety.

CONCLUSIONS/IMPLICATIONS

Weak findings. Only 1 of 4 measures was significant - that one suggest SD to be better than implosive. Study skills equal to control group.

AUTHOR(S): Counts, D. K., Hollandsworth, J. G., & Alcorn, J. D.
TITLE: Use of electromyographic biofeedback and cue-controlled relaxation in the treatment of test anxiety
SOURCE: Journal of Consulting and Clinical Psychology, 1978, 46(5), 990-996.

SUBJECTS

Sex: 28 females, 12 males
Volunteer/Psychology students: undergraduates
Number: 40
ID of controls: same
Criteria for inclusion in study: Upper 1/3 on TAS (21 or above); Otis-Lennon used for matching.

TREATMENT/INTERVENTION

Number of sessions: six in 2 weeks
Length of sessions: 45 minutes
Special instructions/rationale: used recorded instructions

Methods/Intervention: 1. EMG assisted cue-controlled relaxation 2. Cue-controlled relaxation 3. Attention Placebo (soothing music, imagery, and relaxation rationale) 4. Waiting List Control

Group/Individual: Individual
Homework Assigned: "encouraged" to practice daily and apply to anxiety-provoking situations.

MEASUREMENTS

Dependent Variables: 1. Otis-Lennon Mental Ability Test under evaluative instructions (pre-post) 2. STAI-trait (pre-post) 3. STAI-state (pre-post) 4. TAS (pre-post)

Followup: no

Check on Homework: none reported

RESULTS

No difference between the two cue-controlled relaxation groups on any measures, thus they were combined for subsequent analyses. Combined treatment groups significantly better than combined control groups on TAS, STAI-state, & Otis-Lennon.

Statistics Used: Combined groups 1 & 2 and 3 & 4 in making comparisons and used t tests.

OTHER ISSUES

Attrition: 7 of 47, 2 from groups 1 & 2, 3 from group 3

Incentives to Ss: received academic credit

Methodological Problems: very sound methodologically

CONCLUSIONS/IMPLICATIONS

"The general assumption that frontalis relaxation via EMG training generalizes to other muscle groups may not be totally accurate."
On the 3 self-report measures, treatment groups = placebo, suggesting presence of demand effects.
Strongest findings on the Otis-Lennon.

AUTHOR(S): Crighton, J. & Jehu, D.
TITLE: Treatment of examination anxiety by systematic desensitization or psychotherapy in groups
SOURCE: Behavior Research and Therapy, 1969, 7, 245-248.

SUBJECTS

Sex:

Volunteer/Psychology students: volunteers - college age

Number: 23 initially, 6 dropped out - total of 17

ID of controls: non-test-anxious subjects - for grades only

Criteria for inclusion in study: complained of test anxiety at University Health Service and were not undergoing psychiatric treatment

TREATMENT/INTERVENTION

Number of sessions: twice weekly

Length of sessions: one hour

Special instructions/rationale: not mentioned

Methods/Intervention: Systematic desensitization; relaxation with non-directive psychotherapy

Group/Individual: group

Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. Zuckerman's (1960) Affect Adjective Checklist (pre-post)
2. Questionnaire re: sleep disturbance (pre-post) 3. Prescriptions of psychotropic drugs
4. Grades for preceding and current year 5. Fear Survey Schedule 6. Patient's self report and therapist's clinical observations.

Followup: no

Check on Homework: no

RESULTS

After treatment - less distress reported on AACL for total treatment Ss ($p < .001$), no significant difference found between treatment groups. Post treatment - less sleep distress for all treatment Ss ($p < .005$), no difference between groups. Fewer drugs prescribed during treatment than previous year ($p < .005$). No difference in grades when treatment Ss were compared to controls. No other differences.

Statistics Used: One tailed "Sign test," Mann-Whitney U test

OTHER ISSUES

Attrition: 6 subjects

Incentives to Ss:

Methodological Problems: Poor inclusion criteria; small N; no real controls used - control only for 11 Ss on grades only; drug information was self report and retrospective; no systematic approach for assessing therapist observations.

CONCLUSIONS/IMPLICATIONS

With no control data, results may be due to extra-therapeutic factors - particularly with no differences between groups. Results were on self report measures only.

AUTHOR(S): Culler, R. E. & Holahan, C. J.
TITLE: Test anxiety and academic performance: The effects of study related behaviors
SOURCE: Journal of Educational Psychology, 1980, 72(1), 16-20.

SUBJECTS

Sex: not mentioned
Volunteer/Psychology students: Introductory Psychology - freshmen
Number: 96 total, 65 high test anxious, 31 low test anxious
ID of controls: none used
Criteria for inclusion in study: TAS - upper and lower 25th percentile (TAS given twice for reliability)

TREATMENT/INTERVENTION

Number of sessions: two
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: TAS administered earlier. A second TAS and SSHA administered during second session.

Group/Individual: group
Homework Assigned: not relevant

MEASUREMENTS

Dependent Variables: 1. TAS 2. 50-item Study Habit Scale of Study Habits and Attitudes 3. Questionnaire (authors') 4. GPA

Followup: no
Check on Homework: not relevant

RESULTS

Low test anxious Ss:

Have better GPA than high test anxious Ss ($p < .03$)
Differences between groups in study habits ($p < .002$) and total study hours ($p < .002$)
- high test anxious Ss spend more time studying
Significant correlation between good study habits and GPA
Cramming was negatively correlated with GPA ($p < .05$) as was number of classes missed ($p < .001$)

Statistics Used: T-tests, Chi-square, Pearson Product Moment correlation

OTHER ISSUES

Attrition: not mentioned
Incentives to Ss: not mentioned
Methodological Problems:
Mostly self-report measures used (except GPA) - easy to distort - i.e., inflate the number of hours studying.

CONCLUSIONS/IMPLICATIONS

Correlational study - no attempt to change test anxiety - cannot attribute causality. Goal of study was to relate test anxiety to study skills. Results indicate that amount of time studying does not, in and of itself, reduce test anxiety.

AUTHOR(S): Deffenbacher, J. L.
TITLE: Relaxation in vivo in the treatment of test anxiety
SOURCE: Journal of Behavior Therapy and Experimental Psychiatry, 1976, 7, 289-292.

SUBJECTS

Sex: 2 males, 2 females
Volunteer/Psychology students: 2 secretaries, 2 students
Number: 4
ID of controls: none
Criteria for inclusion in study: TAS and AAT

TREATMENT/INTERVENTION

Number of sessions: 5 on weekly basis
Length of sessions: 30-45 minutes
Special instructions/rationale: self-control rationale
Methods/Intervention: Deep muscular relaxation plus cue-controlled procedures
in vivo

Group/Individual: in pairs
Homework Assigned: Ss told to apply once daily - Ss asked to take anxiety readings 3 times daily

MEASUREMENTS

Dependent Variables: 1. TAS (pre-post) 2. AAT (pre-post) 3. GPA 4. SUDS
Rating before final exams and civil service exam

Followup: 2 weeks
Check on Homework: none reported

RESULTS

TAS decreased over time
AAT debilitating decreased over time
AAT facilitative increased over time
SUDS rating decreased
Test performance increased

Statistics Used: Analyzed each S's change over time by t test

OTHER ISSUES

Attrition: no
Incentives to Ss: promised better scores
Methodological Problems: No controls; expectancy effects likely to account for some or all of change. Test performance increases could have been due to practice (taking test two times).

CONCLUSIONS/IMPLICATIONS

As this is a case study without adequate controls it is difficult to make conclusions from this study. The relaxation procedure used is described in detail in the article.

AUTHOR(S): Deffenbacher, J. L.
TITLE: Relationship of worry and emotionality to performance on the Miller Analogies Test
SOURCE: Journal of Educational Psychology, 1977, 69(2), 191-195.

SUBJECTS

Sex: 52 males; 27 females
Volunteer/Psychology students: those taking Miller Analogies Test for admission to
Number: 79 graduate school
ID of controls: none
Criteria for inclusion in study: Ss taking Miller Analogies Test

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: not mentioned
Special instructions/rationale: standardized for Miller Analogies Test
Methods/Intervention: Ss completed Liebert-Morris scale before completing Miller Analogies Test

Group/Individual: group
Homework Assigned: not relevant

MEASUREMENTS

Dependent Variables: 1. Worry - Emotionality Inventory (Liebert & Morris) (a) worry (b) emotionality (c) sum scores 2. Miller Analogies Test (Form M)
Followup: none
Check on Homework: not relevant

RESULTS

No sex differences found for any measure. All three Worry-Emotionality scores were significantly negatively correlated to Miller Analogies performance with worry score most related to Miller. Ss high on both worry and emotionality had the worst performance on the Miller Analogies Inventory

Statistics Used: correlations

OTHER ISSUES

Attrition: 3 of 82 (did analysis and found they were same as actual Ss)
Incentives to Ss:

Methodological Problems: Given that Ss are applying for graduate school, they are likely to be more intelligent than general college students. Only correlational results. These Ss didn't report as much test anxiety as Ss in other studies.
(Median for worry = 10, median for emotionality = 7.5)

CONCLUSIONS/IMPLICATIONS

"At low levels of worry, emotionality was unrelated to performance, but at high levels of worry, high emotionality was debilitating." (p. 194) This conclusion differs from that of Doctor & Altman (1969) who found high levels of emotionality were detrimental within low but not high levels of worry.

"Since the combination of high worry and emotionality was most debilitating, treatments which include both rational restructuring and relaxation are suggested." (p. 194)

AUTHOR(S): Deffenbacher, J. L.
TITLE: Worry, emotionality, and task-generated interference in test anxiety:
An empirical test of attentional theory.
SOURCE: Journal of Educational Psychology, 1978, 70(2), 248-254.

SUBJECTS

Sex: 27 males, 41 females
Volunteer/Psychology students: Psychology class students
Number: 68
ID of controls: none
Criteria for inclusion in study: Upper and lower 1/3 of TAS (lows = 11 or below, highs = 21 or above)

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: not mentioned
Special instructions/rationale: one-half Ss given high stress (evaluative) instructions, one-half Ss given low stress (nonevaluative) instructions
Methods/Intervention: 2 (test anxiety: high and low) x 2 (instructions: high stress and low stress)

Group/Individual: group
Homework Assigned: not relevant

MEASUREMENTS

Dependent Variables: 1. Anagrams 2. Time estimate 3. Post-task questionnaire (asked about cognitions and feelings)

Followup: no
Check on Homework: not relevant

RESULTS

On self-reported anxiety, Low TA and Low Stress significantly less than High TA and High Stress, and significantly less than High TA and Low Stress. On feelings of ability & self-concept, and on ratings of the pleasantness of the task the High TA and High Stress group had significantly lower scores than other 3 groups. High TA and High Stress group also did worse on the anagrams task. No sex differences found.

Statistics Used: Analyses of variance and Duncan's

OTHER ISSUES

Attrition: not mentioned
Incentives to Ss: 5 bonus points toward grade
Methodological Problems: Anagram somewhat artificial task.

CONCLUSIONS/IMPLICATIONS

Supports an attentional theory of test anxiety. The author believes "worry and task-generated interference contributed more heavily than emotionality."

AUTHOR(S): Deffenbacher, J. L. & Hahnloser, R. M.
TITLE: Cognitive and relaxation coping skills in the reduction of test anxiety.
SOURCE: Paper presented at the Annual Convention of Association for the Advancement of Behavioral Therapy, December, 1979, San Francisco.

SUBJECTS

Sex: not mentioned
Volunteer/Psychology students: unknown
Number: unknown
ID of controls: waiting list
Criteria for inclusion in study: unknown

TREATMENT/INTERVENTION

Number of sessions: four bi-weekly
Length of sessions: unknown
Special instructions/rationale: not mentioned

Methods/Intervention: Four treatment groups compared: 1. Cognitive coping skills; 2. Relaxation coping skills; 3. Combination of two treatments (cognitive and relaxation); 4. Waiting list controls

Group/Individual: unknown
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. AAT 2. Liebert & Morris State Test (pre-post)
3. Digit Symbol Test 4. Wonderlic 5. Class exam (post only)

Followup: Yes--but no information as to what measures given and when
Check on Homework: no

RESULTS

Pre measures - no difference between groups. Found: All treatment groups were less worried ($p < .001$), less emotional ($p < .001$) and less state test anxious in analogue and classroom conditions ($p < .001$). No differences between groups on performance.

Statistics Used: analysis of covariance

OTHER ISSUES

Attrition: not mentioned
Incentives to Ss: not mentioned
Methodological Problems: number of Ss not stated - no description of Ss.
No pre screening for high or low test anxiety, no rationale stated, no description of Es, no explanation of class exam given

CONCLUSIONS/IMPLICATIONS

No performance results. Both arousal and cognitive procedures were effective.

AUTHOR(S): Deffenbacher, J. L., Mathis, H. & Michaels, A. C.
TITLE: Two self-control procedures in the reduction of targeted and non-targeted anxieties
SOURCE: Journal of Counseling Psychology, 1979, 26(2), 120-127.

SUBJECTS

Sex: 12 males, 57 females
Volunteer/Psychology students: introductory psychology students
Number: 69
ID of controls: same
Criteria for inclusion in study: Upper 15% (scores greater than 34) on debilitating score on AAT

TREATMENT/INTERVENTION

Number of sessions: seven
Length of sessions: fifty minutes
Special instructions/rationale: applied, self-control rationale for both treatment groups
Methods/Intervention: 1. Self-control relaxation 2. Self-control SD 3. Waiting list control 4. No treatment controls 5. Psychology grades

Group/Individual: group
Homework Assigned: yes

MEASUREMENTS

Dependent Variables: 1. AAT 2. Inventory of Test Anxiety (ITA, Osterhouse)
3. Digit Symbol Test 4. Wonderlic Personnel Test (WPT) 5. FSS
6. STAI-trait
Followup: six weeks after post-testing
Check on Homework: yes

RESULTS

On AAT, both treatment groups better at posttest and followup than two control groups. Same findings for the ITA. No differences among groups on performance measures except psychology grades where treatment groups did better. Both treatment groups better at posttest and followup on FSS and STAI-trait with the relaxation group better than SD at followup.

Statistics Used: Analysis of covariance with pretreatment scores as covariates

OTHER ISSUES

Attrition: two of 69
Incentives to Ss: research credit for class
Methodological Problems: findings primarily on self-report measures.

CONCLUSIONS/IMPLICATIONS

Self-control rationales and procedures can encourage generalization effects to other areas besides test anxiety. Both relaxation and SD procedures were very comparable with findings mostly on self-report measures.

AUTHOR(S): Deffenbacher, J. L. & Michaels, A. C.
TITLE: Two self-control procedures in the reduction of targeted and non-targeted anxieties - a year later.
SOURCE: Journal of Counseling Psychology, 1980, 27(3), 9-15.

SUBJECTS

Sex: males and females
Volunteer/Psychology students: introductory psychology students
Number: 36
ID of controls: same
Criteria for inclusion in study: upper 15% (scores greater than 34) on debilitating AAT

TREATMENT/INTERVENTION

Number of sessions: seven
Length of sessions: fifty minutes
Special instructions/rationale:

Methods/Intervention: 1. Self-control relaxation 2. Self-control SD
3. No-treatment control (followup of original study)

Group/Individual: group
Homework Assigned:

MEASUREMENTS

Dependent Variables: This is a followup of the original Deffenbacher, Mathis, and Michaels study (1979) via the mail.

Followup: 12 months after the original six-week followup
Check on Homework:

RESULTS

Return rate was 74%. At this second followup, both treatment groups had lower AAT debilitating than controls - also lower ratings on test item of FSS. GPA was not different among groups. On nontargeted items, only relaxation group continued to be better than control group (STAI-trait and FSS).

Statistics Used:

OTHER ISSUES

Attrition: 12 of 49
Incentives to Ss:
Methodological Problems:

CONCLUSIONS/IMPLICATIONS

Suggests changes originally brought about by relaxation training was very long-lasting while the SD procedure maintained most of its changes. Authors claim the self-control component of both procedures led to greater maintenance. One of the longest followups in the test anxiety literature.

AUTHOR(S): Deffenbacher, J. L., Michaels, A. C., Michaels, T., & Daley, P. C.
TITLE: Comparison of anxiety management training and self-control desensitization
SOURCE: Journal of Counseling Psychology, 1980, 27(3), 232-239.

SUBJECTS

Sex: 16 males, 50 females
Volunteer/Psychology students: introductory psychology students
Number: 66
ID of controls: same
Criteria for inclusion in study: upper 5% (scores less than 37) on AAT
debilitative

TREATMENT/INTERVENTION

Number of sessions: six (weekly)
Length of sessions: fifty minutes
Special instructions/rationale:

Methods/Intervention: 1. Self-control SD (Goldfried) 2. Anxiety Management Training 3. Waiting List Control 4. No Treatment Control

Group/Individual: group
Homework Assigned: yes

MEASUREMENTS

Dependent Variables: 1. AAT 2. Worry-Emotionality Scale 3. Digit Symbol Test 4. Wonderlic Personnel Test (WPT) 5. Psychology grades
6. FSS 7. STAI-trait
Followup: six weeks post-treatment (in person)
Check on Homework: yes

RESULTS

For AAT debilitative both treatment groups equal and better than the two control groups at post-treatment and followup. Same findings for the FSS test item. AAT facilitative was only better for treatment groups at the posttreatment period. No differences found on Digit Symbol or WPT. Treated groups better than controls on Worry-Emotionality and GPA. Significant findings for nontargeted measures (FSS and STAI-trait) also.

Statistics Used: Analysis of covariance with pretreatment scores as the covariate

OTHER ISSUES

Attrition: 4 of 66
Incentives to Ss: not mentioned
Methodological Problems: Findings were mostly on self-report measures and not on performance measures.

CONCLUSIONS/IMPLICATIONS

Both treatment groups decreased test anxiety and maintained these decreases over a 6-week followup. Both treatments also seemed to generalize to general (trait) anxiety and other anxieties and fears (FSS). However, actual performance was not altered. Authors speak of self-control procedures as not only remedial but also preventive. Suggests anxiety management training easier to conduct than SD.

AUTHOR(S): Deffenbacher, J. L. & Snyder, A. L.
TITLE: Relaxation as self-control in the treatment of test and other anxieties
SOURCE: Psychological Reports, 1976, 39, 379-385.

SUBJECTS

Sex: not mentioned
Volunteer/Psychology students: volunteers
Number: 11
ID of controls: volunteers used as own controls
Criteria for inclusion in study: upper 15% on AAT

TREATMENT/INTERVENTION

Number of sessions: five over 3 1/2 weeks
Length of sessions: 1 hour
Special instructions/rationale: Goldfried Self-Control Relaxation Rationale

Methods/Intervention: Week 1 - 4 -- No treatment
Week 5 - 9 -- Paul's (1966) Relaxation procedure
Week 10 -- Followup 1 week post-treatment

Group/Individual: group
Homework Assigned: Asked to rate anxiety four times daily; practiced relaxation twice daily for 10-15 minutes

MEASUREMENTS

Dependent Variables: 1. AAT (pre-post) 2. Fear Survey Schedule (pre-post)
3. IPAT Anxiety Scale (pre-post)

Followup: 1 week
Check on Homework: not mentioned

RESULTS

For AAT debilitating - treatment < no treatment
For AAT facilitating - treatment > no treatment
FSS - treatment < no treatment
IPAT - treatment < no treatment
No significant changes on any measures over four week no treatment period.

Statistics Used: Repeated measures analyses of variance

OTHER ISSUES

Attrition: none reported
Incentives to Ss: none reported
Methodological Problems: Confounded relaxation procedure by including some imagery exercises as well as self-statements. Used only self-report measures - since no independent control/placebo group was used, expectancy effects can't be ruled out for the change found.

CONCLUSIONS/IMPLICATIONS

Ss were able to generalize to other anxieties when taught relaxation with a self-control paradigm.

AUTHOR(S): Dember, W. N., Naire, F. & Miller, F. J. (STUDY 1)
TITLE: Further validation of the Alpert-Haber Achievement Anxiety Test
SOURCE: Journal of Abnormal and Social Psychology, 1962, 65(6), 427-428.

SUBJECTS

Sex: males (mean age = 22)
Volunteer/Psychology students: men in Catholic seminary in a psychology course
Number: 39
ID of controls: none
Criteria for inclusion in study: membership in class

TREATMENT/INTERVENTION

Number of sessions: one (in class)
Length of sessions: not mentioned
Special instructions/rationale: none

Methods/Intervention: Ss asked to complete AAT during class .

Group/Individual: group
Homework Assigned: not relevant

MEASUREMENTS

Dependent Variables: 1. School and College Ability Test (SCAT) 2. Course grade
3. GPA overall 4. AAT (facilitative and debilitative)

Followup: no
Check on Homework: not relevant

RESULTS

AAT+ & AAT- = $-.65$, AAT+ & SCAT = $+.27$, AAT+ & grade = $+.43$, AAT+ & GPA = $+.52$, AAT- & SCAT = $-.35$, AAT- & grade = $-.46$, AAT- & GPA = $-.37$, SCAT & grade = $+.39$, SCAT & GPA = $+.61$ (all the above correlations were significant)

Statistics Used: correlations .

OTHER ISSUES

Attrition:

Incentives to Ss:

Methodological Problems: Only males and somewhat unique population restricts generalization. Correlational only. Didn't use AAT difference score.

CONCLUSIONS/IMPLICATIONS

AUTHOR(S): Dember, W. N., Naire, P. & Miller, F. J. (STUDY 2)
TITLE: Further validation of the Alpert-Haber Achievement Anxiety Test
SOURCE: Journal of Abnormal and Social Psychology, 1962, 65(6), 427-428.

SUBJECTS

Sex: 25 males, 39 females
Volunteer/Psychology students: psychology students
Number: 64
ID of controls: none
Criteria for inclusion in study: membership in class

TREATMENT/INTERVENTION

Number of sessions: 1 (in class)
Length of sessions: not reported
Special instructions/rationale: none

Methods/Intervention: Ss asked to complete AAT during class

Group/Individual: group
Homework Assigned: not relevant

MEASUREMENTS

Dependent Variables: 1. AAT (facilitative and debilitative) 2. Course grade

Followup: no
Check on Homework: not relevant

RESULTS

Sex differences found.

For males, AAT+ & AAT- = -.65
AAT+ & grade = +.59
AAT- & grade = -.34

For females, AAT+ & AAT- = -.42
AAT+ & grade = +.06 (ns)
AAT- & grade = -.23 (ns)

Statistics Used: correlations

OTHER ISSUES

Attrition: none
Incentives to Ss: not mentioned
Methodological Problems: correlational only

CONCLUSIONS/IMPLICATIONS

The AAT seems to be more predictive (reliable) for males than females.

AUTHOR(S): Denney, D. R.
TITLE: Active, passive, and vicarious desensitization
SOURCE: Journal of Counseling Psychology, 1974, 21(5), 369-375.

SUBJECTS

Sex: 36 females, 12 males
Volunteer/Psychology students: Psychology students
Number: 48
ID of controls: same
Criteria for inclusion in study: Upper 15% on TAS (average score of 22.4)

TREATMENT/INTERVENTION

Number of sessions: 7.7 sessions averaged
Length of sessions: 35 minutes
Special instructions/rationale:

Methods/Intervention: 2 (Active SD, Passive SD) x 2 (Direct SD, Vicarious SD)
plus Relaxation Alone plus No Treatment Control

Group/Individual: individual
Homework Assigned: not mentioned

MEASUREMENTS

Dependent Variables: All measures administered pre-post. 1. STABS 2. FSS
3. TMAS 4. Profile of Mood States 5. Otis Quick Scoring Mental
Ability Test 6. Course grades 7. GPA

Followup: no

Check on Homework: none mentioned

RESULTS

On STABS, all SD groups sign. better than Control with Relaxation = Control. On FSS, active-direct, active-vicarious and relaxation groups all better than Control. On Otis, only relaxation group was better than Control. Relaxation group also better than passive SD. No diff. for course grades. On GPA, Relaxation group sign. better than Control and all SD groups.

Statistics Used: Analysis of covariance on pre-post change scores

OTHER ISSUES

Attrition: none mentioned

Incentives to Ss: credit

Methodological Problems: good controls taken to avoid experimenter bias.

CONCLUSIONS/IMPLICATIONS

No differences between active or vicarious SD. Relaxation showed better performance change than did SD.

AUTHOR(S): Denney, D. R. & Rupert, P. A.
TITLE: Desensitization and self-control in the treatment of test anxiety
SOURCE: Journal of Counseling Psychology, 1977, 24(4), 272-280.

SUBJECTS

Sex: 28 males, 70 females
Volunteer/Psychology students: Psychology Ss
Number: 98
ID of controls: same
Criteria for inclusion in study: Upper 15% on TAQ (originally 1000 Ss were tested)

TREATMENT/INTERVENTION

Number of sessions: individualized, but occurred biweekly
Length of sessions: 4 scenes per session or 45 minutes
Special instructions/rationale: The rationale provided was one of the manipulated variables.
Methods/Intervention: 2 (active rationale; passive rationale) by 2 (self-control SD, standard SD). Also two control groups: placebo and no-treatment

Group/Individual: individual
Homework Assigned: no mention

MEASUREMENTS

Dependent Variables: 1. Expectancy score (after 3rd session) 2. Suinn test Anxiety Scales (pre-post) 3. AAT (pre-post) 4. FSS (pre-post) 5. Wonderlic (pre-post) 6. Anagrams (pre-post) 7. Psych. grade 8. GPA
Followup: in terms of GPA, a 2 to 3 semester follow-up
Check on Homework: no mention

RESULTS

No sign. differences among trmt. groups and placebo group on expectancy. Manipulation check for rationales confirmed them as perceived as either active or passive. Ss in self-control procedure required fewer scene exposures. No pretest differences among groups. On AAT all 4 treatment groups better than placebo or control - same for Suinn. Self control groups had greater facilitative anxiety (AAT) than standard SD groups - same was true for the Wonderlic. FSS showed no differences. No differences for psych grade or current GPA, but self-control Ss had higher GPAs one semester later.

Statistics Used: ANOVA on post-scores adjusted for pre scores

OTHER ISSUES

Attrition: 12 of 98, 5 from the active self-control group
Incentives to Ss: course related credit
Methodological Problems: attrition problem

CONCLUSIONS/IMPLICATIONS

Self-control Sd procedure with the active coping rationale requires less scene exposure and sessions to be better or equal to traditional SD. GPA should be assessed some time later - only then may actual performance differences be detectable. This study is one of few to demonstrate actual performance effects (Wonderlic and GPA).

AUTHOR(S): Desiderato, O. & Koskinen, P.
TITLE: Anxiety, study habits, and academic achievement
SOURCE: Journal of Counseling Psychology, 1969, 16(2), 162-165.

SUBJECTS

Sex: females
Volunteer/Psychology students: freshmen
Number: 94
ID of controls: none
Criteria for inclusion in study: Upper and lower 20% on Heineman's forced choice anxiety scale and SAT scores

TREATMENT/INTERVENTION

Number of sessions: two
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: Ss completed tests at beginning of school year and after the first semester

Group/Individual: group
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. AAT 2. SSHA 3. Need for Achievement (nAch) 4. SAT
5. GPA 6. Heineman's Forced Choice Anxiety (trait)

Followup: no
Check on Homework: not relevant

RESULTS

General anxiety not related to GPA. SAT and GPA were associated. Ss high on facilitative score had sign. higher GPA than Ss high on AAT debilitative. Ss high in AAT facilitative had higher SSHA scores than Ss high on AAT debilitative. Ss high on SSHA had better GPA than low SSHA Ss. Need for achievement did not distinguish Ss on GPA or AAT.

Statistics Used: ANOVA based on extreme groups

OTHER ISSUES

Attrition: none
Incentives to Ss: not mentioned
Methodological Problems: Correlational study. Artificially created groups based on extreme scores.

CONCLUSIONS/IMPLICATIONS

Specific test related anxiety is a better predictor of academic achievement than is general anxiety. Those who had high test anxiety (AAT debilitative) had poorer study skills.

AUTHOR(S): Doctor, R. M. & Altman, F.
TITLE: Worry and emotionality as components of test anxiety: Replication and further data
SOURCE: Psychological Reports, 1969, 24, 563-568.

SUBJECTS

Sex: not mentioned
Volunteer/Psychology students: sophomores in General Psychology course
Number: 159
ID of controls: none
Criteria for inclusion in study: TAQ--just prior to exam administration--used 5 worry items, 5 emotionality items, 1 expectancy item - divided at median for worry and for emotionality

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: length of time it took to finish exam
Special instructions/rationale: not mentioned

Methods/Intervention: gave class examination between administrations of the TAQ

Group/Individual: group
Homework Assigned: none

MEASUREMENTS

Dependent Variables: 1. TAQ (pre-post)

Followup: none
Check on Homework: none

RESULTS Both worry ($p < .01$) and emotionality scores ($p < .01$) dropped after class exam. Emotionality scores negatively correlated with performance expectancy ($p < .025$). Worry scores increased when expectancy dropped and decreased when expectancy increased ($p < .05$). High worry Ss lower scores on final than low worry Ss ($p < .01$). High emotionality-low worry group did worse on final than low worry-low emotionality Ss on the final exam ($p < .05$).

Statistics Used: Unequal N in each group - Did a series of t-tests to compare 4 groups; Did a series of correlations-multiple tests; No correlations or between-group comparisons of worry and emotionality were made.

OTHER ISSUES

Attrition: unknown

Incentives to Ss: unknown

Methodological Problems: No controls; self report measure is base (TAQ); No control for ability on exam and knowledge of course material; Correlations were made with data from other studies, despite their having different criteria on TAQ, different populations and different testing conditions.

CONCLUSIONS/IMPLICATIONS

Authors felt that worry was the main effect on performance.

AUTHOR(S): Emery, J. R. & Krumboltz, J. D.
TITLE: Standard vs. individualized hierarchies in desensitization to reduce test anxiety
SOURCE: Journal of Counseling Psychology, 1967, 14(3), 204-209.

SUBJECTS

Sex: 36 males, 18 females
Volunteer/Psychology students: freshmen college students
Number: 54
ID of controls: same
Criteria for inclusion in study: Stanford University's own scale used at freshmen orientation

TREATMENT/INTERVENTION

Number of sessions: 16 (twice weekly for 8 weeks)
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: 1. Standard systematic desensitization with individualized hierarchies
2. Systematic desensitization with standard hierarchy
3. Waiting list control

Group/Individual: individual
Homework Assigned: not mentioned

MEASUREMENTS

Dependent Variables: 1. course grades (post.) 2. self-report of test anxiety (pre-post) 3. ratings before and after final exam

Followup: 1 week prior to final exam
Check on Homework: not mentioned

RESULTS

Both SD groups reported less trait test anxiety and less anxiety at test time than did control group. Although a trend SD groups were not significantly better than controls regarding grades.

Statistics Used: analysis of covariance

OTHER ISSUES

Attrition: not mentioned
Incentives to Ss: not mentioned
Methodological Problems: Ss were exceptionally bright (mean of 90th percentile on entrance test). 60% overlap in hierarchies used in two SD groups. Only found effects for self-report measures.

CONCLUSIONS/IMPLICATIONS

It is not necessary to provide an individualized hierarchy for SD to be effective in reducing subjective test anxiety.

AUTHOR(S): Finger, R. & Galassi, J. P.
TITLE: Effects of modifying cognitive versus emotionality responses in the treatment of test anxiety
SOURCE: Journal of Consulting and Clinical Psychology, 1977, 45(2), 280-287.

SUBJECTS

Sex: not mentioned
Volunteer/Psychology students: students (unclear whether they were volunteers)
Number: 48
ID of controls: same
Criteria for inclusion in study: 1058 Ss initially tested on AAT. Upper 1/3 on AAT scores used.

TREATMENT/INTERVENTION

Number of sessions: 8 (twice weekly)
Length of sessions: 45 minutes
Special instructions/rationale: Instead of imagery, showed slides of test-taking situations.
Methods/Intervention: 1. covert positive reinforcement for cognitive responses re: attention to task 2. relaxation treatment focusing on emotionality (after slides shown) 3. combination of first two groups 4. waiting list control
Group/Individual: group
Homework Assigned: not mentioned

MEASUREMENTS

Dependent Variables: 1. AAT (pre-post) 2. Emotionality-Worry Scale (pre-post) 3. Wonderlic Personnel Test (WPT) (Pre-post) 4. Digit Symbols Test (pre-post)
Followup: no
Check on Homework: none mentioned

RESULTS

On Emotionality Score, all treatment groups better than control group. On Worry Score, all treatment groups better than control group. On Debilitating Scale of AAT, all treatment groups equal but only the first treatment group was significantly better than control group. On Facilitating Scale of AAT, WPT, and Digit Symbol there were no significant differences among groups.

Statistics Used: Analysis of covariance with pretest scores used as covariates and Duncan's as paired comparisons test.

OTHER ISSUES

Attrition: 2 of 50
Incentives to Ss: not mentioned
Methodological Problems: Had pretest differences among groups on Emotionality and Worry Scales. No attention placebo to control for expectancy/demand effects. Changes only on self-report measures.

CONCLUSIONS/IMPLICATIONS

Two therapists (one male, one female) alternated running groups to avoid therapist bias influences. Failed to find support for Liebert & Morris' (1967) contention that differential effects would result from treating the worry and emotionality components of test anxiety.

AUTHOR(S): Freeling, N. W. & Shemberg, K. M.
TITLE: The alleviation of test anxiety by systematic desensitization
SOURCE: Behavior Research and Therapy, 1970, 8, 293-299.

SUBJECTS

Sex: 25 women, 5 males
Volunteer/Psychology students: psychology students
Number: 30
ID of controls: none used
Criteria for inclusion in study: upper 30% of TAQ

TREATMENT/INTERVENTION

Number of sessions: 6 (once weekly)
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: 1. Systematic desensitization 2. Relaxation training only
3. Visual imagery only (imagined scenes from SD hierarchy without relaxation)

Group/Individual: group
Homework Assigned: 15-20 minutes daily

MEASUREMENTS

Dependent Variables: 1. Anagrams (pre-post) 2. TAQ (pre-post)

Followup: no
Check on Homework: none mentioned

RESULTS

SD group changed significantly from pre to post on TAQ but other 2 groups didn't change. On TAQ, SD = relax., but SD had lower scores than visual imagery. On anagrams, all 3 groups were equal; however, visual imagery changed significantly (did better) pre to post on the anagrams task.

Statistics Used: ANOVAs and t-test within group on pre-post scores

OTHER ISSUES

Attrition: 2 of 30
Incentives to Ss: no mention
Methodological Problems: On the more stringent statistical test (ANOVA) very few findings were yielded.

CONCLUSIONS/IMPLICATIONS

Self-report measure showed more change than performance measure. Relaxation alone as effective as SD on both self-report and performance measures.

AUTHOR(S): Galassi, J. P, Frierson, H. T. & Sharer, R.
TITLE: The cognitions of high, moderate and low test anxious students during an actual test situation
SOURCE: Paper presented at the Annual Meeting of the Association for the Advancement of Behavioral Therapy, December, 1979, San Francisco.

SUBJECTS

Sex: not mentioned
Volunteer/Psychology students: history class
Number: 229
ID of controls: none
Criteria for inclusion in study: TAS

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: one hour
Special instructions/rationale: not mentioned

Methods/Intervention: Completed a checklist at different times during one hour and 40 minute classroom examination.

Group/Individual: group
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. TAS (pre-post) 2. History test score (post) 3. 20 items about "cognitive structure," and checklist which included: thoughts about physiological arousal, SUD score, positive task relevant cognitions, and negative task irrelevant cognitions.
Followup: no
Check on Homework: no

RESULTS

Found that high test anxious group had fewer positive thoughts than low and moderate test anxious groups ($p < .05$).

Statistics Used: 3x3x2 unequal cell ANOVA looking at test taking time, level of test anxiety and GPA.

OTHER ISSUES

Attrition: not mentioned
Incentives to Ss: not mentioned
Methodological Problems: No control for study skills or knowledge in history; no controls, no description of Ss, E not blind to conditions, measures used not standard, inclusion criteria not stated.

CONCLUSIONS/IMPLICATIONS

Only limited results, no performance results.

AUTHOR(S): Garlington, W. K. & Cotler, S. B.
TITLE: Systematic desensitization of test anxiety
SOURCE: Behavioral Research and Therapy, 1968, 6, 247-256.

SUBJECTS

Sex: female
Volunteer/Psychology students: Introductory Psychology students
Number: 31
ID of controls: 18 of above - no contact controls
Criteria for inclusion in study: Modified Fear Survey Sched. II & TAS criteria - upper 15% of TAS & reported "terror" or "very much fear" on item #31 on Fear Inventory - 35 of 675 met criteria.

TREATMENT/INTERVENTION

Number of sessions: 12 sessions - 2 times a week for 6 weeks
Length of sessions: 30 minutes
Special instructions/rationale: called and asked to participate in program to help people with strong fears of examinations.
Methods/Intervention: 1. Treatment group - desensitization taught by audio tape control group 2. No treatment

Group/Individual: individual
Homework Assigned: told to practice daily

MEASUREMENTS

Dependent Variables: 1. Modified Fear Schedule II (pre-post) 2. TAS (pre-post)
3. GAMMA (post) 4. Anagrams (post)

Followup: no
Check on Homework: no

RESULTS

No pre differences in groups. No pre-post, group, interaction effects on Fear Survey Schedule. Both treatment and control groups decreased on TAS. No difference on "performance scores" - GPA, etc. No effect on Psychology or GPA for semester. No differences on Otis and Anagrams.

Statistics Used: ANOVA with repeated measures on same S-N of control group artificially boosted by adding mean score (why not use analysis with unequal N?)

OTHER ISSUES

Attrition: 4 from treatment group and 3 from control.
Incentives to Ss: required to participate for course.
Methodological Problems: No placebo control. Used both relaxation and SD in treatment group. Measures used for screening were also given pre-post outcome measures. Fear Survey score - only one item pre compared to all items post. Statistical procedures weak. No controls for study skills and knowledge of psychology.

CONCLUSIONS/IMPLICATIONS

Only one self report measure showed a difference (TAS). Results may reflect subjects' feeling more comfortable in the university setting since control Ss also reported anxiety decreasing.

AUTHOR(S): Goldfried, M. R., Linehan, M. M. & Smith, J. L.
TITLE: Reduction of test anxiety through cognitive restructuring
SOURCE: Journal of Consulting and Clinical Psychology, 1978, 46(1), 32-39.

SUBJECTS

Sex: 15 males and 21 females
Volunteer/Psychology students: advertised for volunteers
Number: 36
ID of controls: also volunteers
Criteria for inclusion in study: those who responded to advertisement (age range - 18 to 49 years)

TREATMENT/INTERVENTION

Number of sessions: six weekly
Length of sessions: one hour
Special instructions/rationale: Depended upon treatment group - either Ellis' Self-defeating thoughts or an extinction rationale.
Methods/Intervention: 1. Cognitive restructuring 2. Prolonged exposure to hierarchy items without relaxation (extinction) 3. Waiting list control.
Group/Individual: group
Homework Assigned: yes - required to fill out homework sheets and discuss them the next session.

MEASUREMENTS

Dependent variables: 1. S-R Inventory of Anxiousness (pre, post, followup) 2. STABS (pre, post, followup) 3. AAT (pre, post, followup) 4. Worry-Emotionality Scale (pre, post, followup) 5. Expectations for improvement (after 1st session). Measures used to assess generalization to other areas included the STAI-trait, "giving a speech" and "going to a party" items from S-R Inventory, the Fear of Negative Evaluation and Social Avoidance and Distress scales. The analogue testing situation included the WPT, Digits Forward, Digits Backward & Digit Symbol tests from WAIS (these were administered under high evaluative instructions).
Followup: six weeks post-treatment (excluding controls)
Check on Homework: Ss asked to turn in homework sheets

RESULTS Pre-post findings included: S-R Inventory (TA), CogRestruc reported less test anxiety than Extinct. which reported less anxiety than Controls. Same findings for STABS and AAT debilitating. For generalization measures: On 2 items of S-R Inventory (party & job) CogRestruc reported less anxiety than Controls. On both Fear of Neg. Eval. and Social Avoid. and Distress scales, CogRestruc reported less anxiety than both Extinct. and Control groups. No differences pre-post on AAT Facilitating, Worry-Emotionality scores, STAI-trait, or speech item of S-R Inventory. CogRestruc and Extinction had equal expectancy ratings (authors assume this indicates equal credibility). At followup, CogRestruc reported less anxiety than Extinction on STABS, S-R Inventory (party item), and Social Avoidance and Distress Scale. On Self-report rating scales, at followup CogRestruc Ss reported more "satisfaction with treatment" than Extinction Ss, but both groups were equal for "helpfulness of therapy," estimates of generalization effects, and liking of the therapist.

Statistics Used: Analysis of covariance

OTHER ISSUES

Attrition: 6 of 42
Incentives to Ss: none reported
Methodological Problems: Possible E effects as authors were therapists for both groups. Didn't analyze scores on the behavioral task. Otherwise, pretty methodologically sound. Ss may have tired of the extensive testing.

CONCLUSIONS/IMPLICATIONS

CogRestruc decreased self-report test anxiety and showed generalization better than Extinction, although some of the differences had disappeared by followup.

AUTHOR(S): Goldfried, M. R. & Sobocinski, D. (STUDY 1)
TITLE: Effects of irrational beliefs on emotional arousal
SOURCE: Journal of Consulting and Clinical Psychology, 1975, 43(4), 504-510.

SUBJECTS

Sex: female
Volunteer/Psychology students: Introduction to Psychology students
Number: 77
ID of controls: none
Criteria for inclusion in study: none

TREATMENT/INTERVENTION

Number of sessions: unknown
Length of sessions: unknown
Special instructions/rationale: Ss told that they were validating a new personality inventory
Methods/Intervention: correlational study

Group/Individual: group
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. Irrational Beliefs Test 2. Social Avoidance & Distress Scale 3. Fear of Negative Evaluation Scale 4. AAT 5. Personal Report of Confidence as a Speaker Scale
Followup: no
Check on Homework: no

RESULTS

All the tests significantly correlated with the IBT, except the Facilitating Anxiety subscale of the AAT. The most consistent scales of IBT were: demand for approval from others, high self expectations, overconcern regarding future events.

Statistics Used: Pearson Product-Moment Correlation - each test with every other test and subtest.

OTHER ISSUES

Attrition: unknown
Incentives to Ss: required for course
Methodological Problems: Only female Ss used; self report measures; no identity of Ss given; results don't indicate how high and low test anxious Ss differ behaviorally.

CONCLUSIONS/IMPLICATIONS

Correlational, so no causality can be concluded. Supports the position that irrational cognitions relate to anxiety.

AUTHOR(S): Goldfried, M. R. & Sobocinski, D. (STUDY 2)

TITLE:

SOURCE:

SUBJECTS

Sex: female

Volunteer/Psychology students: Introduction to Psychology students

Number: 18

ID of controls: none

Criteria for inclusion in study: (top 18% & low 18%) Irrational Beliefs Test
Subscale on the tendency to expect approval by everyone

TREATMENT/INTERVENTION

Number of sessions: one

Length of sessions: not mentioned

Special instructions/rationale: not mentioned

Methods/Intervention: 5 tape recorded situations involving interpersonal events
to get disapproval by others, i.e., therapeutic release would be to
imagine yourself on a beach

Group/Individual: individual

Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. MAACL (3 times), 2. Distance approximation task (post)
3. Word association and speed writing tasks (post)

Followup: no

Check on Homework: no

RESULTS

High irrationality group became more anxious ($p < .01$), hostile ($p < .01$)
and depressed ($p < .01$) after vignettes. Low irrationality group
showed increase in depression only ($p < .05$). After therapeutic
release there were no differences in groups on MAACL. Distance
approximation and word tasks, no difference at any time.

Statistics Used: F tests for planned comparisons

OTHER ISSUES

Attrition: unknown

Incentives to Ss: unknown

Methodological Problems: Small N; rationale not given; no controls, repeated
administrations of MAACL in short period of time.

CONCLUSIONS/IMPLICATIONS

May have just sensitized some Ss to rejection. Results opposite
of what was expected.

AUTHOR(S): Green, R. G.
TITLE: Effects of anticipation of positive and negative outcomes on audience anxiety
SOURCE: Journal of Consulting and Clinical Psychology, 1977, 45(4), 715-716.

SUBJECTS

Sex: female
Volunteer/Psychology students: unknown
Number: 80
ID of controls: same as above
Criteria for inclusion in study: TAS

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: unknown
Special instructions/rationale:

Methods/Intervention: three different instructions given: (1) observed and told would be evaluated; (2) observed and would be told how to improve; and (3) unobserved

Group/Individual: unknown
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. Palmar Sweat (pre-post) 2. Anagrams - "eight difficult anagrams" (pre-post)

Followup: no
Check on Homework: no

RESULTS

Main effect for treatment condition significant on time on anagrams and palmar sweat ($p < .01$). Treatment by test anxiety interaction was significant ($p < .01$). Subjects who worked alone did the best.

Statistics Used: ANOVA - Means and other statistics not presented.

OTHER ISSUES

Attrition: unknown
Incentives to Ss: unknown
Methodological Problems: No description of Ss; whether method was individual or group; female Ss only; groups and conditions not clearly defined.

CONCLUSIONS/IMPLICATIONS

Authors concluded that test anxiety only due to anticipation of negative effects but not positive effects.

AUTHOR(S): Guidry, L. S. & Randolph, D. L.
TITLE: Covert reinforcement in the treatment of test anxiety
SOURCE: Journal of Counseling Psychology, 1974, 21(4), 260-264.

SUBJECTS

Sex: males and females
Volunteer/Psychology students: undergraduate volunteers
Number: 36
ID of controls: same
Criteria for inclusion in study: STABS (top 25%)

TREATMENT/INTERVENTION

Number of sessions: six (twice a week)
Length of sessions: thirty minutes
Special instructions/rationale:

Methods/Intervention: 1. Covert reinforcement 2. Placebo control
3. No-treatment control

Group/Individual: group
Homework Assigned: not mentioned

MEASUREMENTS

Dependent Variables: 1. TAQ 2. STAI 3. STABS

Followup: yes - three weeks after treatment ended
Check on Homework: not mentioned

RESULTS

Covert reinforcement group lower on STABS than both Control groups at followup but only lower than the No-treatment group at post-test. On the TAQ, Covert reinforcement group lower than both Control groups at post-test but only lower than the No-treatment group at followup. On STAI, Covert reinforcement different from No-treatment group at post-test and followup.

Statistics Used: ANOVA

OTHER ISSUES

Attrition: none mentioned
Incentives to Ss: volunteers
Methodological Problems:
Only used self-report measures.

CONCLUSIONS/IMPLICATIONS

Supports efficacy of covert reinforcement as a treatment for test anxiety. Also points up that expectancy factors need to be controlled.

AUTHOR(S): Harris, G. & Johnson, S. B.
TITLE: Comparison of individualized covert modeling self control, systematic desensitization, and study skills training for alleviation of test anxiety
SOURCE: Journal of Consulting and Clinical Psychology, 1980, 48(2), 186-194.

SUBJECTS

Sex: not mentioned
Volunteer/Psychology students: volunteers
Number: 48
ID of controls: Waiting list controls
Criteria for inclusion in study: meet all of following: volunteers, above 30 on Debilitating Subscale of AAT, had GPA less than 3.5, and were willing to be in all 10 sessions.

TREATMENT/INTERVENTION

Number of sessions: 8 treatment plus 2 for assignment
Length of sessions: weekly for 1 hour
Special instructions/rationale: not mentioned

Methods/Intervention: 4 group interventions: (1) Study skills only; (2) Self control desensitization and study skills; (3) Individual covert modeling and study skills; (4) Waiting list.

Group/Individual: group
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. STABS (pre-post) 2. AAT (pre-post) 3. TAS (pre-post) 4. Social Avoidance and Distress Scale (pre-post) 5. Fear of Negative Evaluation Scale (pre-post) 6. 3 quarters of GPA
Followup: no
Check on Homework: none

RESULTS

Correlations between self report instruments were low to moderate; AAT-FA and GPA no relationship to any other dependent measure. Group x time, $p < .001$ (covert modeling showed largest decrease). Post-test-modeling and SD lower on STABS than other groups ($p < .05$). Subscale DS of AAT - main effect for group ($p < .004$) and time ($p < .0001$) - modeling group showed greatest change. FA of AAT - no group x time interaction, just group and time.

Statistics Used: MANOVA to compare dropouts showed no differences. Primarily used MANOVA with repeated measures and Pairwise t-tests.

OTHER ISSUES

Attrition: high - 3 from each group and 5 of 15 controls.
Incentives to Ss: volunteers
Methodological Problems:
Attrition high. Small n per group. Same E for all groups.

CONCLUSIONS/IMPLICATIONS

This study attempts to sort out which treatment method is best. All groups decreased self reports of test anxiety, but only the modeling group showed better grades (Waiting list Ss' grades actually decreased). Study skills were not demonstrated as helpful in reducing anxiety. Descriptions of what was done in each group were very complete. Authors' goal was to utilize responses already in the person's repertoire; active coping was seen as more effective than passive coping. It was also concluded that reductions in test anxiety may not lead to a general reduction in anxiety.

AUTHOR(S): Hollandsworth, J. G., Glazeski, R. C., Kirkland, K., Jones, G. & VanNorman, L.
TITLE: An analysis of the nature and effects of test anxiety: Cognitive, behavioral, and physiological components
SOURCE: Cognitive Therapy and Research, 1979, 3(2), 165-180.

SUBJECTS

Sex: females
Volunteer/Psychology students: undergraduates in psychology courses
Number: 6
ID of controls: none
Criteria for inclusion in study: 3 High TA (> 29 on TAS) (All Ss average on general anxiety) 3 Low TA (< 9 on TAS)

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: not mentioned
Special instructions/rationale: none

Methods/Intervention: Ss took tests under stressful instructions while physiological measures were collected

Group/Individual: individual
Homework Assigned: no

MEASUREMENTS

Dependent Variables: Only collected once. 1. GPA 2. ACT 3. STAI (state and trait) 4. Cognitive Interference Questionnaire 5. AAT 6. Otis-Lennon Mental Ability Test 7. Skin Resistance 8. Heart rate 9. Respiration 10. Self-statements emitted during testing.
Followup: no
Check on Homework: no

RESULTS

By visual examination it appeared Lows had higher GPA than Highs. Lows = Highs on ACT; Lows scored higher on Otis Lennon than Highs; Lows reported less anxiety on STAI than Highs (for both state and trait forms). Highs had higher AAT debilitating scores but lower AAT facilitating scores than Lows. On CIQ, Lows reported fewer interfering thoughts. Highs = Lows for skin resistance. Lows reported lower heart rate and respiration than Highs. Lows made more facilitating self-statements during testing than Highs.

Statistics Used: None. Data are graphically presented.

OTHER ISSUES

Attrition: no
Incentives to Ss: not specified
Methodological Problems: very low N, purely descriptive.

CONCLUSIONS/IMPLICATIONS

Low test anxious Ss also were physiologically aroused under these testing situations, but appeared to label the arousal differently than high test anxious Ss. Supports Holroyd, et al. (1978) findings.

AUTHOR(S): Holroyd, K. A.
TITLE: Cognition and desensitization in the group treatment of test anxiety
SOURCE: Journal of Consulting and Clinical Psychology, 1976, 44(6), 991-1001.

SUBJECTS

Sex: unknown
Volunteer/Psychology students: student volunteers
Number: 60
ID of controls: waiting list control
Criteria for inclusion in study: 1. Volunteer in response to announcement & (2) complete at least 1 sem. college & (3) scored above 32 on Debilitating Anxiety Scale of AAT
TREATMENT/INTERVENTION

Number of sessions: seven
Length of sessions: 1 hour weekly
Special instructions/rationale: "Participating in study of effective methods for treatment of test anxiety"

Methods/Intervention: Assigned to groups by matching test anxiety level, sex and schedule. 4 groups: 1. Cognitive therapy (Wine, 1971) - task-irrelevant ruminations - R-E therapy 2. Group systematic desensitization 3. Combine treatments of groups 1 & 2 directed at both worry and emotionality 4. Pseudo therapy/meditation - nonspecific treatment effects

Group/Individual: group
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. AAT 2. Analogue testing situation: digit symbol test immediately followed by State Anxiety Scale and Anxiety differential then digit symbol again 3. GPA 4. 2 measures to assess placebo effect of treatment (all given pre, post & followup)

Followup: 1 month
Check on Homework: no

RESULTS Debilitating Anxiety Scores - group x pre-post interaction, $F = 6.8$, $p < .001$. Analogue testing situation - group x time, $F = 3.4$, $p < .05$ & $F = 3.0$, $p < .05$ - differential improvements in digit symbol scores occurred during & following treatment - cognitive group did best. State Anxiety Scores - cognitive therapy showed greatest reduction - group x pre-post interaction, $F = 5.1$, $p < .05$. Anxiety Differential scores - pre-post & post-followup - both group x time, $F = 4.0$, $p < .01$ and $F = 4.2$, $p < .005$. Cognitive group obtained lowest scores. GPA - group x time interaction, $F = 4.8$, $p < .005$ cognitive highest - all groups higher than waiting list.

Statistics Used: Repeated measures ANOVAs and Duncan's test; ANOVA showed no initial differences on pretests; no therapist effects.

OTHER ISSUES

Attrition: 7 dropped - schedule conflicts and/or dropped from school
Incentives to Ss: volunteers
Methodological Problems: Advanced graduate students as therapists - used procedural manual and training sessions. Used two control groups to control for placebo effects. A methodologically sound study.

CONCLUSIONS/IMPLICATIONS

Differences maintained from post to followup. No differences among groups on validity measures and post questionnaire. The cognitive group performed the best - particularly on the practical measures of GPA and analogue test situation. All Ss thought all groups were valid treatment. Evidence also shows that nonspecific treatment characteristics may have strong effect on outcome, therefore should have both control groups.

AUTHOR(S): Holroyd, K. A.
TITLE: Effectiveness of an "attribution therapy" manipulation with test anxiety
SOURCE: Behavior Therapy, 1978, 9, 526-534.

SUBJECTS

Sex: not mentioned
Volunteer/Psychology students: Introductory Psychology course
Number: 250
ID of controls: placebo control
Criteria for inclusion in study: TAS - top and bottom quartile

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: not mentioned
Special instructions/rationale: Ss told that the study was looking at the effects of "sentin" on memory. Also told to not eat or drink two hours prior to appointment to increase plausibility of attribution.
Methods/Intervention:
Four groups: told drug was either relaxant or stimulant; given either anxiety producing or reducing instructions.
Group/Individual: groups - 4 to 8 per group
Homework Assigned: none

MEASUREMENTS

Dependent Variables: 1. Anagrams (Sarason, 1961) 2. State Anxiety Scale (Spielberger et al., 1969) 3. Rate on 7 point scale how much they worried about anagrams.
Followup: no
Check on Homework: no

RESULTS 52% of all Ss reported bodily changes. High test anxious subjects reported higher levels of anxiety arousal and worry during testing than low ($p < .0001$ and $p < .005$). Ss who received evaluation instructions were more aroused and worried than those who didn't ($p < .0001$ and $p < .0002$). Ss who thought they received a stimulant reported greater arousal than those told it was a relaxant or placebo ($p < .01$). Three way interaction on anxiety arousal ($p < .0005$). Same pattern as above shown with anagram performance, i.e., high test anxious Ss solved fewer. Low test anxious Ss who worked under evaluative instructions and thought they had received a relaxant solved fewer anagrams ($p < .05$).
Statistics Used: Three factor ANOVA ($2 \times 2 \times 3$)

OTHER ISSUES

Attrition: unknown
Incentives to Ss: unknown
Methodological Problems: The attribution might have been frightening. Possibly Ss told it was a relaxant expected to have less energy to produce.

CONCLUSIONS/IMPLICATIONS

Two variables which affect attribution manipulation are: S arousal and severity of target problem. No significant instructions by medication belief by test anxiety effect. No strong case for therapeutic effects of attribution presented. Ss who were told they took medication reported more worry than those who were told it was a placebo. May need a different type of attribution manipulation for test anxiety.

AUTHOR(S): Holroyd, K. A., Westbrook, T., Wolf, M. & Badhorn, E.
TITLE: Performance, cognition and physiological responding in test anxiety
SOURCE: Journal of Abnormal Psychology, 1978, 87(4), 442-451.

SUBJECTS

Sex: females
Volunteer/Psychology students: Introduction to Psychology students
Number: 72
ID of controls: none mentioned
Criteria for inclusion in study: top and bottom quartile of 37 item version of TAS - high above 26, low below 14.

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: 75 minutes
Special instructions/rationale: Ss told the experiment concerns the physiological correlates of problem solving
Methods/Intervention: Assigned by block randomization to one of three conditions:
(1) maximum evaluative apprehension; (2) minimum evaluative apprehension; and (3) state of evaluative self awareness.

Group/Individual: individual
Homework Assigned: not mentioned

MEASUREMENTS

Dependent Variables: Post only: Modified Stroop color-word task and anagram task (simultaneous measures of skin resistance and heart rate); State Anxiety Scale; "Self made causal attribution questions"
Followup: no
Check on Homework: no

RESULTS

High test anxiety Ss took longer to solve anagrams ($F = 3.9, p < .05$); self reported more anxiety ($p < .001$); worry (but not anxiety) related to anagram performance ($r(34) = .80, p < .0001$); evaluated performance more poorly ($F = 8.0, p < .01$). Only main effect was found with attribution question - those in first condition attributed more difficulty of task to lack of effort than those in other 2 conditions. Only physiological differences between high and low test anxious Ss was in pattern of change in heart rate.

Statistics Used: 2-way ANOVA (test anxiety x condition)

OTHER ISSUES

Attrition: unknown
Incentives to Ss: unknown
Methodological Problems: Induction instructions were unclear - difficult to determine how conditions in the minimum evaluative apprehension group differed from those in state of evaluative self awareness. No control group. Anagrams only given once.

CONCLUSIONS/IMPLICATIONS

Gives well stated rationale as to why physiological measures are needed in test anxiety research. Interesting that high test anxious Ss evaluated themselves poorly, but this evaluation was actually unrelated to performance - whereas low test anxious Ss' evaluations correlated with performance.

AUTHOR(S): Horne, A. M. & Matson, J. L.
TITLE: A comparison of modeling, desensitization, flooding, study skills and control groups for reducing test anxiety.
SOURCE: Behavior Therapy, 1977, 8, 1-8.

SUBJECTS

Sex: 68 females, 32 males
Volunteer/Psychology students: psychology students
Number: 100
ID of controls: same
Criteria for inclusion in study: Interviewed to determine motivation. 100 highest scoring on TAS.

TREATMENT/INTERVENTION

Number of sessions: 10 (two weekly)
Length of sessions: 1 hour
Special instructions/rationale: High demand inducing rationale

Methods/Intervention: 1. Systematic Desensitization 2. Flooding 3. Modeling with Coping model via audiotapes 4. Study Skills Training 5. Waiting List Control

Group/Individual: groups
Homework Assigned: not reported

MEASUREMENTS

Dependent Variables: All administered pre-post. 1. TAS 2. IPAT Self Analysis Scale (general anxiety) 3. Pulse Rate 4. Behavioral observation by trained Es while Ss taking tests 5. Self report of test anxiety 6. GPA
Followup: no
Check on Homework: none reported

RESULTS

Significant group effects on all six measures. For TAS, Modeling reported least TA, Study Skills reported most. For IPA, Modeling reported lowest anxiety while Flooding reported most. For Beh. Obs. checklist, Modeling had lowest anxiety scores while Controls had highest. For both Pulse Rate and Self-report TA, SD had least anxiety and Controls most. On GPA, SD and Modeling were higher than Flooding and Control. Study Skills also had higher GPA than Control.

Statistics Used: analysis of covariance

OTHER ISSUES

Attrition: not mentioned
Incentives to Ss: volunteers/no course credit
Methodological Problems: Pulse rate taken by hand before course exams. Possible expectancy effects as Ss were highly motivated and high demand rationales were given. The flooding group was asked to verbalize feelings. Modeling group was selectively reinforced by E. Initial differences were found among groups.

CONCLUSIONS/IMPLICATIONS

Over all measures, the Modeling procedure seemed most effective.

AUTHOR(S): Huck, S. W. & Jacko, E. J.
TITLE: Effect of varying the response format of the Alpert-Haber Achievement Anxiety Test
SOURCE: Journal of Counseling Psychology, 1974, 21(2), 159-163.

SUBJECTS

Sex: males and females
Volunteer/Psychology students: psychology Ss
Number: 104
ID of controls: none
Criteria for inclusion in study: membership in class

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: Three different formats of AAT were administered. 1. Standard format 2. Without buffer items 3. With response scale changed.

Group/Individual: group
Homework Assigned: not relevant

MEASUREMENTS

Dependent Variables: AAT scores. 1. Facilitative 2. Debilitative 3. F-D. To serve as criterion measures, Ss self-reported test anxiety.

Followup: no
Check on Homework: not relevant

RESULTS

F-D score of AAT more reliable than either Facilitative or Debilitative scores. Forms without buffer items or with response scale altered yielded different results than standard format.

Statistics Used: Analysis of covariance with self rating of test anxiety serving as covariate, reliability coefficients

OTHER ISSUES

Attrition: no
Incentives to Ss: not mentioned
Methodological Problems: No test-retest format used. These reliabilities seem important to check because most studies use the AAT in a pre-post format.

CONCLUSIONS/IMPLICATIONS

F-D AAT score better (more reliable) than either Facilitative or Debilitative score alone. Since different forms yielded different results, the authors suggest future researchers use the standard format.

AUTHOR(S): Hussian, R. A. & Lawrence, P. S.
TITLE: The reduction of test, state, and trait anxiety by test-specific and generalized stress inoculation training
SOURCE: Cognitive Therapy and Research, 1978, 2(1), 25-38.

SUBJECTS

Sex: 9 males, 21 females
Volunteer/Psychology students: Psychology students
Number: 30
ID of controls: same
Criteria for inclusion in study: Score of 19 or above on TAS

TREATMENT/INTERVENTION

Number of sessions: Treatment was self-administered from a package of materials over three weeks - there was minimal contact
Length of sessions: materials over three weeks - there was minimal contact
Special instructions/rationale: with the experimenter.

Methods/Intervention: 1. Test specific stress inoculation/coping 2. Non-test/Coping 3. Test/Non-Coping (extinction) 4. Non-Test/Non-Coping
5. Waiting List Control

Group/Individual: individual
Homework Assigned: (self-administered)

MEASUREMENTS

Dependent Variables: 1. TAS (pre-post & followup) 2. 2 verbal rating scales (pre-post) 3. Course test score (pre-post)

Followup: two months later (just TAS)
Check on Homework: Ss required to periodically turn in materials

RESULTS

For all 4 variables combined in MANOVA, Group 1 was significantly better than Groups 3 or 5 and Group 2 was significantly better than Groups 3, 4 & 5. Individual ANOVAs found no group difference for course test score; on TAS, Group 1 was significantly better than Groups 3, 4, & 5. On verbal rating scales Groups 1 & 2 were best. At followup on the TAS, Group 1 significantly better than Groups 3, 4, & 5.

Statistics Used: MANOVA & Univariate analyses

OTHER ISSUES

Attrition: no mention
Incentives to Ss: no mention
Methodological Problems: Since self-administered, lost some control over whether Ss actually do the same thing. Were groups equally credible to Ss? Significant findings only found for self-report measures.

CONCLUSIONS/IMPLICATIONS

Significant self-report changes can be yielded with a self-administered package, with the standard cognitive restructuring yielding the best results. Provides a prevention model to test anxiety.

AUTHOR(S): Jaffe, P. G. & Carlson, P. M.
TITLE: Modeling therapy for test anxiety: The role of model affect and consequence
SOURCE: Behavior Research and Therapy, 1972, 10, 329-339.

SUBJECTS

Sex: 20 females, 10 males
Volunteer/Psychology students: Intro. Psych. students who volunteered
Number: 30
ID of controls: same
Criteria for inclusion in study: Median or higher on TAQ (217 Ss originally took the test). Matched on Ability.

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: one hour
Special instructions/rationale:

Methods/Intervention: 2 (calm model, anxious model) by 2 (negative consequences, positive consequences) plus no treatment control.

Group/Individual: individual
Homework Assigned: none

MEASUREMENTS

Dependent Variables: 1. Modified WAIS including Voc., Digit Span, Obj. Assembly, Digit Symbol, Pict. Arrangement 2. Anagrams 3. Course grades 4. TAQ 5. Subjective ratings of anxiety during test. All tests administered pre-post to modeling tape.
Followup: no
Check on Homework: not relevant

RESULTS RE: WAIS Subtests, only differences among groups when looked only at subtests that were included in the modeling tape: All treatment groups except the Calm Model, Positive Consequences did better than the Control group on the WAIS.

Statistics Used: A control group vs. p x g factorial design analysis of variance

OTHER ISSUES

Attrition: none
Incentives to Ss: not mentioned (sounds like they were offered treatment)
Methodological Problems: Es not naive to hypotheses. Low Ns per cell. Only one-shot "treatment." No followup.

CONCLUSIONS/IMPLICATIONS

"Viewing anxious models lead to a significant increase in introductory psychology grades and viewing negative consequences lead to a decrease in self-reported test anxiety...question the notion that the most effective modeling scene are ones displaying calm models and positive consequences."
Best results shown on performance measures rather than self-report measures.

AUTHOR(S): Johnson, S. M. & Sechrest, L.
TITLE: Comparison of desensitization and progressive relaxation in treating test anxiety
SOURCE: Journal of Consulting and Clinical Psychology, 1968, 32(3), 280-286.

SUBJECTS

Sex: males and females
Volunteer/Psychology students: psychology students
Number: 33
ID of controls: unaware they were serving as controls (tested in class)
Criteria for inclusion in study: 1. AAT (10 or greater score on D-F) 2. Below 85 percentile on midterm exam.

TREATMENT/INTERVENTION

Number of sessions: five
Length of sessions: 45 minutes
Special instructions/rationale: Ss didn't know the scales and tests taken in class were related to study. SD = conditioning rationale. Relax = Jacobson's.
Methods/Intervention: 1. Systematic Desensitization 2. Relaxation Training
3. No Treatment Control

Group/Individual: individual, but a standardized SD hierarchy used
Homework Assigned: yes

MEASUREMENTS

Dependent Variables: 1. AAT (pre-post) 2. grade improvement 3. number of non-essential bits of information given on answer sheet 4. tidiness of answer sheet
Followup: varied from 1 to 6 months, but equal across groups
Check on Homework: Ss made verbal reports to E

RESULTS

On exam scores, SD > Relaxation = Cont. No differences found on AAT, number of nonessential bits or tidiness.

Statistics Used: Analysis of covariance with subsequent Duncan's.

OTHER ISSUES

Attrition: 5 of 33 didn't take final AAT
Incentives to Ss: not mentioned
Methodological Problems: First author was the only therapist for all groups - possible E bias.

CONCLUSIONS/IMPLICATIONS

Systematic Desensitization yielded performance differences while Relaxation Training alone did not. That there were no differences among groups on the self-report measure was unusual.

AUTHOR(S): Katahn, M., Strenger, S, & Cherry, N.
TITLE: Group counseling and behavior therapy with test anxious college students
SOURCE: Journal of Consulting Psychology, 1966, 30(6), 544-549.

SUBJECTS

Sex: unknown
Volunteer/Psychology students: undergraduates in psychology
Number: 22
ID of controls: Two - volunteer control (scheduling problems) and nonvolunteer
Criteria for inclusion in study: 8 point scale and TAS (upper 25%)

TREATMENT/INTERVENTION

Number of sessions: eight
Length of sessions: 1 hour
Special instructions/rationale: not mentioned

Methods/Intervention: 2 groups - both did all of the following: general counseling about anxiety, problem solving, read book on study skills, relaxation training and systematic desensitization

Group/Individual: 8 in each group
Homework Assigned: told to practice relaxation two times a day for 15 minutes

MEASUREMENTS

Dependent Variables: 1. TAS 2. GPA (pre and post)

Followup: no
Check on Homework: no

RESULTS

Significant difference between GPA pre and post between treatment groups and control ($F = 4.42, p < .05$). No sex differences. Those individual Ss who DID NOT improve were doing poorly initially. TAS decreased significantly for treatment groups ($t = 8.6, p < .01$).

Statistics Used: Comparison of TAS Ss to controls confusing

OTHER ISSUES

Attrition: 2 males dropped after first group meeting
Incentives to Ss: volunteers
Methodological Problems: Small N; Can't tell effectiveness of specific effects of specific treatments; No control for placebo effects

CONCLUSIONS/IMPLICATIONS

Procedure section very detailed. Results indicate that interventions were not effective in improving grades with those who needed it most, i.e., those who were doing poorly initially.

AUTHOR(S): Kestenbaum, J. M. & Weiner, B.
TITLE: Achievement performance related to achievement motivation and test anxiety
SOURCE: Journal of Consulting and Clinical Psychology, 1970, 34(3), 343-344.

SUBJECTS

Sex: 43 males and 36 females
Volunteer/Psychology students: seventh and eighth graders
Number: 79
ID of controls: none used
Criteria for inclusion in study: membership in class

TREATMENT/INTERVENTION

Number of sessions: three
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: Stanford Reading Test was administered twice in a within-Ss design with 1 format including items in random order and 1 format containing items ordered according to ascending difficulty.

Group/Individual: group
Homework Assigned: not relevant

MEASUREMENTS

Dependent Variables: Three weeks pre-testing contained: 1. TASC and 2. Children's Achievement Motivation Scale (CAMS). At time of experiment, the Stanford Advanced Reading Achievement Test; the Stanford was readministered 1 week later.

Followup: two testing periods--but not used as a followup
Check on Homework: not relevant

RESULTS

No differences for two formats of Stanford Reading Test. TASC neg. correlated (-.43 for boys, -.38 for girls) with test performance. TASC neg. correlated (-.48 for boys, -.11 for girls) with CAMS. CAMS pos. correlated (+.52 for boys, +.30 for girls) with test performance.

Statistics Used: Correlations

OTHER ISSUES

Attrition: not mentioned
Incentives to Ss: not mentioned
Methodological Problems: Merely correlational data.

CONCLUSIONS/IMPLICATIONS

Test anxiety inversely related to performance and achievement motivation (but only for boys). Achievement motivation positively related to test performance but only for boys. Suggests boys and girls may be affected differently re: causes of test anxiety.

AUTHOR(S): Kirkland, K. & Hollandsworth, J. G.
TITLE: Test anxiety, study skills, and academic performance
SOURCE: Journal of College Student Personnel, 1979, 20, 431-436.

SUBJECTS

Sex: 88 males, 217 females
Volunteer/Psychology students: Psych Ss
Number: 305
ID of controls: none
Criteria for inclusion in study: membership in class

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: not mentioned
Special instructions/rationale: Ss told the study was to investigate effects of TA on performance
Methods/Intervention: All tests administered at once. All Ss completed same tests under same conditions.

Group/Individual: group
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. GPA 2. ACT 3. AAT (Fac, Deb, Diff) 4. TAS
5. Effective Study Test (EST) 6. General Anxiety Scale (GAS)

Followup: no
Check on Homework: no

RESULTS

Sign. correlations included TAS and GPA (-.33), TAS & ACT (-.31), EST & GPA (.37), EST & ACT (.40), GAS & GPA (-.12), AAT diff & GPA (-.41), AAT diff & ACT (-.37), AAT fac & GPA (.34), AAT fac & ACT (.32), AAT deb & GPA (-.39), AAT deb & ACT (-.33). ACT accounted for 31%, AAT dif for 6% and EST for 4% of variance toward prediction of GPA. There were no sex differences.

Statistics Used: Correlations

OTHER ISSUES

Attrition: no
Incentives to Ss: not mentioned
Methodological Problems: merely correlational

CONCLUSIONS/IMPLICATIONS

AAT diff score most predictive of performance compared to AAT fac or AAT deb. Although significant, none of the correlations with TAS were very large. TAS & EST not related suggesting TA not merely study skills deficits.

AUTHOR(S): Kirkland, K. & Hollandsworth, J. G.
TITLE: Effective test taking: Skills-acquisition versus anxiety-reduction techniques
SOURCE: Journal of Consulting and Clinical Psychology, 1980, 48(4), 431-439.

SUBJECTS

Sex: males and females
Volunteer/Psychology students: introductory psychology and sociology students
Number: 60
ID of controls: same
Criteria for inclusion in study: top 28% of 232 Ss on AAT difference score

TREATMENT/INTERVENTION

Number of sessions: five
Length of sessions: ninety minutes
Special instructions/rationale:

Methods/Intervention: 1. Skills acquisition group (re: study habits and test-taking skills) 2. Cue-controlled relaxation group 3. Meditation
4. Practice only (practiced on anagrams tests)

Group/Individual: group
Homework Assigned: unclear

MEASUREMENTS

Dependent Variables: 1. Worry-Emotionality Scale (WES) 2. Cognitive-Somatic Anxiety Questionnaire (CSAQ) 3. Cognitive Interference Questionnaire (CIQ) 4. Attentional Interference Scale (AIS) 5. Heart rate (HR) 6. Pulse transit time (PTT) 7. Exam Behavior Scale (EBS) 8. GPA 9. Otis-Lennon 10. Anagrams test
Followup: no
Check on Homework: not mentioned

RESULTS

Test taking skills (EBS) were greater for skills acquisition group than for other three groups. On CIQ, Meditation Ss reported fewer interfering thoughts than did cue-controlled relaxation Ss. All three treatment groups had lower Worry scores on WES than did practice only group. The cue-controlled relaxation group had lower somatic scores on the CSAQ than did the meditation group. No differences among groups on HR or PTT. On anagrams and GPA, skills acquisition group did better than other three groups.

Statistics Used: Analysis of covariance with pretest score used as covariate

OTHER ISSUES

Attrition: 10 of 60
Incentives to Ss: unclear
Methodological Problems: Very sound methodologically except there was no followup.

CONCLUSIONS/IMPLICATIONS

Suggests that test anxiety (as measured by AAT) has a large component of skills deficiency. The meditation treatment primarily affected cognitive anxiety while the relaxation treatment primarily affected somatic anxiety.

AUTHOR(S): Laxer, R. M., Quarter, J., Kooman, A., & Walker, K.
TITLE: Systematic desensitization and relaxation of high test-anxious secondary school students
SOURCE: Journal of Counseling Psychology, 1969, 16(5), 446-451.

SUBJECTS

Sex: both
Volunteer/Psychology students: Students from 4 secondary schools in Toronto (grds. 9-12)
Number: 99
ID of controls: same
Criteria for inclusion in study: AAT, GPA less than B, interview

TREATMENT/INTERVENTION

Number of sessions: daily for six weeks
Length of sessions: twenty minutes
Special instructions/rationale:

Methods/Intervention: 1. SD 2. Relaxation Training 3. No Treatment Control

Group/Individual: group
Homework Assigned: not mentioned

MEASUREMENTS

Dependent Variables: 1. AAT 2. TMAS 3. GPA

Followup: no
Check on Homework: not mentioned

RESULTS

Only on TMAS was there a significant treatment effect - such that Relaxation had significant lower anxiety than Controls.

Statistics Used: Multiple linear regression model with pretest scores used to predict post-test scores

OTHER ISSUES

Attrition: 10 of 99
Incentives to Ss: unclear
Methodological Problems: Unusually large number of sessions in this study - questionable practicality if cannot yield performance changes.

CONCLUSIONS/IMPLICATIONS

While both treatment groups reduced TA, only the Relaxation group did better than Control. Findings only for self-report measures.

AUTHOR(S): Laxer, R. M., Quarter, J., Dooman, A., & Walker, K. (cont.)

TITLE:

SOURCE:

SUBJECTS

Sex: both

Volunteer/Psychology students: Grade 13 students

Number: 30

ID of controls: same

Criteria for inclusion in study: AAT, GPA less than a B, interview

TREATMENT/INTERVENTION

Number of sessions: daily for six weeks

Length of sessions: twenty minutes

Special instructions/rationale:

Methods/Intervention: 1. SD 2. Control (no-treatment)

Group/Individual: group

Homework Assigned: not mentioned

MEASUREMENTS

Dependent Variables: 1. AAT 2. TMAS 3. GPA

Followup: no

Check on Homework: not mentioned

RESULTS

For TMAS and AAT debilitating, SD had significantly less anxiety than Controls.

Statistics Used: multiple linear regression model, pretest scores used as predictors of post-test scores

OTHER ISSUES

Attrition: 3 of 30

Incentives to Ss: unclear

Methodological Problems: Unusually large number of sessions used, probably impractical for most studies. No changes in actual performance, only self-report.

CONCLUSIONS/IMPLICATIONS

SD better than Control, but only on Self-report measures. Weak findings given the amount of treatment provided.

AUTHOR(S): Laxer, R. M. & Walker, K.
TITLE: Counterconditioning versus relaxation in the desensitization of test anxiety
SOURCE: Journal of Counseling Psychology, 1970, 17(5), 431-436.

SUBJECTS

Sex: male and female (number of each not given)
Volunteer/Psychology students: secondary school students in Ontario
Number: 119
ID of controls: same
Criteria for inclusion in study: 85% or above on debilitating scale of AAT and below 50% on facilitating scale of AAT; interview

TREATMENT/INTERVENTION

Number of sessions: 20 over four weeks
Length of sessions: twenty minutes
Special instructions/rationale:

Methods/Intervention: 1. Systematic Desensitization 2. Relaxation Alone
3. Simulation Alone 4. Relaxation Simulation 5. Attention Control
6. No Treatment Control

Group/Individual: group
Homework Assigned: none mentioned

MEASUREMENTS

Dependent Variables: 1. AAT (Facilitating, Debilitating) 2. TMAS 3. GPA
4. STEP Math 5. STEP Science 6. STEP Reading 7. STEP Writing

Followup: no
Check on Homework: none mentioned

RESULTS

GPA was not looked at since GPA post was available only for small number. Only dependent measure of AAT yielded sign. results. SD and Relaxation Alone were sign. better than Control. Relaxation Simulation was nearly significant.

Statistics Used: Intercorrelation analysis to see if pre and post scores related, then one-way analyses of covariance

OTHER ISSUES

Attrition: 9 of 119
Incentives to Ss: not mentioned
Methodological Problems:
Only significant results were on one measure - and that was a self-report measure.

CONCLUSIONS/IMPLICATIONS

Since test anxiety was reduced for only subjects who experienced relaxation training, at least part of the effectiveness of SD must be attributed to relaxation training. This study used an unusually high number of treatment sessions (20).

AUTHOR(S): Liebert, R. M. & Morris, L. W.
TITLE: Cognitive and emotional components of test anxiety: A distinction and some initial data
SOURCE: Psychological Reports, 1967, 20, 975-978.

SUBJECTS

Sex: unknown
Volunteer/Psychology students: undergraduate psychology class
Number: 54
ID of controls: none
Criteria for inclusion in study: Asked question just prior to course exam as to how well they thought they would do on the exam and were divided into high, low, medium groups for analysis

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: unknown
Special instructions/rationale: not mentioned

Methods/Intervention: Class statistically divided according to expectancy - all Ss had same procedure, i.e. course exam

Group/Individual: group
Homework Assigned: none

MEASUREMENTS

Dependent Variables: Just prior to exam given the TAQ

Followup: none
Check on Homework: none

RESULTS

Group divided according to expectancy - ANOVA found significant relationship between expectancy level and worry items on TAQ ($F = 14.45$, $p < .0005$). No relationship with expectancy and emotional items on TAQ.

Statistics Used: ANOVA

OTHER ISSUES

Attrition: unknown
Incentives to Ss: course exam required
Methodological Problems: No controls; Results compounded by ability, amount of time spent studying, etc.; Only one question used to determine expectancy; TAQ and expectancy question not confidential from instructor administering exam may lead to Ss inflating or deflating TAQ & expectancy.

CONCLUSIONS/IMPLICATIONS

Difficult to comprehend implications of results.

AUTHOR(S): Little, S., & Jackson, B.
TITLE: The treatment of test anxiety through attentional and relaxation training.
SOURCE: Psychotherapy: Theory, Research and Practice, 1974, 11(2), 175-178.

SUBJECTS

Sex: 18 females; 16 males
Volunteer/Psychology students: volunteers from three schools, 7th & 8th grade
Number: 34 chosen from 191
ID of controls: Two - placebo control and no treatment control
Criteria for inclusion in study: Upper quartile of Test Anxiety Scale for Children and within 2 middle quartiles of General Anxiety Scale for Children

TREATMENT/INTERVENTION

Number of sessions: two weeks - total of six sessions
Length of sessions: 1 hour
Special instructions/rationale: audio tape rationale

Methods/Intervention: Five conditions: 1. Attentional training 2. Relaxation and Attentional Training 3. Relaxation only 4. Placebo expectancy 5. Waiting List Control.

Group/Individual: group
Homework Assigned: no

MEASUREMENTS

Dependent Variables: TASC & GASC (pre & post) test on selection from relevant and irrelevant information on split half's of WISC subtests (Arith., Simil., Digit Span) & Subtests of DAT (Spelling, Verb. Reas., Numer. Ability, Clerical Speed) (pre & post).
Followup: no
Check on Homework: no

RESULTS

Significant difference ($p < .05$) between attentional training and relaxation group (second condition) and waiting list control. No results on academic measures.

Statistics Used: ANOVA

OTHER ISSUES

Attrition: Three said not interested over phone
Incentives to Ss: volunteer
Methodological Problems: Small N per group; Good matching of Ss to groups; E were blind to conditions.

CONCLUSIONS/IMPLICATIONS

Relaxation or Attentional alone, not enough -- Authors conclude that doing both at once addresses both emotional and worry components of test anxiety. Demonstrates the need for placebo control group.

AUTHOR(S): Mandler, G. & Sarason, S. B.
TITLE: A study of anxiety and learning
SOURCE: Journal of Abnormal and Social Psychology, 1952, 47, 166-173.

SUBJECTS

Sex: not mentioned
Volunteer/Psychology students: Psychology Ss
Number: 42 (33 in the end)
ID of controls: same
Criteria for inclusion in study: TAQ 3 1/2 months before study

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: not mentioned
Special instructions/rationale: Ss didn't know the study related to the earlier TAQ they had completed. Study introduced as one on aptitude tests.
Methods/Intervention: 2 Test Anxiety (high and low) by 3 Instructions (success, failure, neutral)

Group/Individual: individual
Homework Assigned: none

MEASUREMENTS

Dependent Variables: 1. Kohs Block Design Tests #2 & #13 (administered 6 times)
2. Digit Symbol (administered 6 times) 3. Wisconsin Card Sorting Test

Followup: no
Check on Homework: no

RESULTS

High test anxious Ss did worse on Kohs than did low test anxious Ss. High TA group had larger variances. As given more practice, High TA Ss did better (lessened diff. from low TA group). Whether given success or failure feedback, Low TA Ss did better and High TA Ss did worse.

Statistics Used: t and F tests

OTHER ISSUES

Attrition: nine
Incentives to Ss: not mentioned
Methodological Problems: high attrition rate

CONCLUSIONS/IMPLICATIONS

Findings re: reactions to feedback support an attributional approach to test anxiety. Test anxiety does effect performance. This was essentially a validation study for the TAQ.

AUTHOR(S): Mann, J. & Rosenthal, T. L.
TITLE: Vicarious and direct counterconditioning of test anxiety through individual and group desensitization
SOURCE: Behavior Research and Therapy, 1969, 7, 359-367.

SUBJECTS

Sex: 39 females, 32 males
Volunteer/Psychology students: 7th graders referred by school counselor
Number: 71
ID of controls: 21 8th graders
Criteria for inclusion in study: TAS, Gates-McGinnite Reading Test (GM)

TREATMENT/INTERVENTION

Number of sessions: eight, weekly
Length of sessions: 50 minutes
Special instructions/rationale:

Methods/Intervention: Systematic desensitization variations. .1. Direct-Individual
2. Vicarious-Individual 3. Direct-Group 5. Group-Observing-Group
5. Group-Observing-Model

Group/Individual: both
Homework Assigned: not mentioned

MEASUREMENTS

Dependent Variables: 1. TAS (pre-post) 2. Gates-McGinnite (pre-post)

Followup: no
Check on Homework: not mentioned

RESULTS

For TAS Controls had higher TAS scores at post than Experimental.
For Gates-McGinnite no sign. increase for Exp. group from pre to post, but Experimental did better than Controls at post test. Female Ss showed sign. more reduction on TAS. No diff. among treatment groups for either measure.

Statistics Used: t tests and analysis of variance

OTHER ISSUES

Attrition: not mentioned
Incentives to Ss: referred by counselor so probably not volunteer
Methodological Problems: Controls and Exp. Ss not same age or grade. Especially a problem as test anxiety has been shown to increase with age for school age children.

CONCLUSIONS/IMPLICATIONS

Vicarious and direct desensitization showed equal effects, as did individual and group formats - for 12-13 year olds.

AUTHOR(S): Marchetti, A., McGlynn, F. D., & Patterson, A. S.
TITLE: Effects of cue-controlled relaxation, a placebo treatment and no treatment on changes in self-reported and psychophysiological indices of test anxiety among college students
SOURCE: Behavior Modification, 1977, 1(1), 47-73.

SUBJECTS

Sex: male and female
Volunteer/Psychology students: Introduction to Psychology requirement
Number: 18 males and 18 females chosen from 350
ID of controls: waiting list
Criteria for inclusion in study: TAS - highest scores & highest scores on Inventory of Anxiousness - exam form

TREATMENT/INTERVENTION

Number of sessions: six sessions over three weeks for cue controlled; 12 for pseudo therapy
Length of sessions: one hour
Special instructions/rationale: told experiment would help them with test taking behavior
Methods/Intervention: 1. Cue controlled relaxation 2. Pseudo-therapy 3. No treatment

Group/Individual: individual
Homework Assigned: told to practice cue control for 30 minutes at home every evening

MEASUREMENTS

Dependent Variables: 1. TAS (pre-post) 2. S-R Inventory of Anxiousness Exam Form & skin conductance & heart rate during exam 3. Self report (pre-post) 4. Questionnaire on treatment credibility (post only)
Followup: none
Check on Homework: none

RESULTS

No effects of TAS & S-R Inventory Speech Form. Interaction effect for S-R Inventory - Exam Form - trial x group - pseudo-therapy best in reducing test anxiety. Physiological measure significant only for group's main effect ($p < .01$). Subjects not equal to start with: Heart rate in cue control group were lower before intervention. Significance for response main effect ($p < .01$).

Statistics Used: 3 x 2 ANOVA

OTHER ISSUES

Attrition: none
Incentives to Ss: none
Methodological Problems: E were inexperienced. Pseudo therapy almost identical to desensitization. Internal validity problems with pulse rate.

CONCLUSIONS/IMPLICATIONS

Results only on one self report measure - for pseudo therapy group.

AUTHOR(S): McCordick, S. M., Kaplan, R. M., Finn, M. E., & Smith, S. H.
TITLE: Cognitive modification and modeling for test anxiety
SOURCE: Journal of Consulting and Clinical Psychology, 1979, 47(2), 419-420.

SUBJECTS

Sex: 11 males, 37 females
Volunteer/Psychology students: self-referred, upper class students
Number: 48
ID of controls: same
Criteria for inclusion in study: Based solely on self-report of test anxiety.

TREATMENT/INTERVENTION

Number of sessions: ten (2 a week)
Length of sessions: 1 hour
Special instructions/rationale:

Methods/Intervention: 1. Meichenbaum's cognitive behavior modification and study skills 2. Meichenbaum's cognitive behavior modification, study skills and video-taped modeling 3. Meichenbaum's cognitive behavior modification, study skills, and rehearsal modeling 4. Study skills control 5. Waiting list control

Group/Individual: group
Homework Assigned: none reported

MEASUREMENTS

Dependent Variables: 1. Liebert-Morris Worry Scale (pre-post) 2. AAT (pre-post)
3. Self report of anxiety in analogue testing situation and after final exam
4. Wonderlic Personnel Test 5. Grades
Followup: no
Check on Homework: none reported

RESULTS

On Liebert Morris, Group 3 significantly less anxious than Groups 4 and 5.
On self report after exam, Group 3 significantly less anxious than Groups 5 and 5.
On self report after analogue situation, Groups 3 and 1 were significantly less anxious than Groups 4 and 5. No differences among Groups 1, 2 or 3 on any measures.

Statistics Used: Planned comparisons

OTHER ISSUES

Attrition: none mentioned
Incentives to Ss: none mentioned
Methodological Problems: Only differences found on self-report measures

CONCLUSIONS/IMPLICATIONS

While not significantly different from other groups, the cognitive modification plus rehearsal modeling was best. No effects found for performance measures.

AUTHOR(S): Means, C. E., Moore, C. H., & Means, L. W.
TITLE: Post session discussion in induced anxiety therapy and reduction of test anxiety
SOURCE: Psychological Reports, 1977, 41, 447-452.

SUBJECTS

Sex: females
Volunteer/Psychology students: college students
Number: 32
ID of controls: waiting list
Criteria for inclusion in study: Raw score of at least 15 or upper 10% on Sarason Autobiographical Survey - test anxiety subtest

TREATMENT/INTERVENTION

Number of sessions: eight weekly
Length of sessions: unknown
Special instructions/rationale: Told would be seen individually using a technique that is effective in reducing test anxiety
Methods/Intervention: 1. Induced anxiety and discussion 2. Induced anxiety and rest 3. Rest and discussion group

Group/Individual: individual
Homework Assigned: none

MEASUREMENTS

Dependent Variables: 1. Heart rate (continuous) 2. Sarason (pre-post)

Followup: none
Check on Homework: none

RESULTS

The two groups with induced anxiety showed greatest decreases on Sarason ($p < .005$). Rest and discussion group did worse but not significantly different from other three groups. Heart rate changed within sessions as S moved from periods of relaxation to anxiety - but did not show differences between treatments.

Statistics Used: ANOVA, Pearson

OTHER ISSUES

Attrition: one S
Incentives to Ss: told study would reduce test anxiety
Methodological Problems: Heart rate shown to be not an effective measure.

CONCLUSIONS/IMPLICATIONS

No differences between two induced anxiety techniques.

AUTHOR(S): Meichenbaum, D. H.
TITLE: Cognitive modification of test anxious college students
SOURCE: Journal of Consulting and Clinical Psychology, 1972, 39(3), 370-380.

SUBJECTS

Sex: 15 male, 6 female
Volunteer/Psychology students: volunteer (ad in university newspaper)
Number: 21 (age 17-25)
ID of controls: two groups: Waiting list high test anxious (N=5); 10 low test anxious
Criteria for inclusion in study: Paid \$2.00 to take tests. No one was excluded who answered ad.

TREATMENT/INTERVENTION

Number of sessions: eight
Length of sessions: 60 minutes
Special instructions/rationale: not given

Methods/Intervention: 1. Standard systematic desensitization 2. Cognitive modification - focus on self-verbalization

Group/Individual: group - except 3 Ss who were seen individually
Homework Assigned: desensitization group told to practice relaxation at home

MEASUREMENTS

Dependent Variables: 1. Digit Symbol (Brown, 1969) (pre-post) 2. Raven's Matrices test (1956) (pre-post) 3. Alpert-Haber test anxiety questionnaire (pre-post) 4. Stress inducing instructions 5. Self report 6. GPA 7. Zuckerman Anxiety Adjective Checklist 8. Husik-Alexander anxiety differential

Followup: all Ss returned mailed Alpert-Haber Questionnaire (one month)

Check on Homework: none

RESULTS

Treatment x Trials interaction for facilitating ($F = 3.85, p < .05$) and debilitating anxiety ($F = 5.45, p < .01$) subscales of Alpert-Haber Anxiety test. On debilitating scale, both treatment groups decreased and maintained at one month.

Statistics Used: multiple t tests rather than ANOVA

OTHER ISSUES

Attrition: unknown

Incentives to Ss: low test anxiety; Ss paid

Methodological Problems:

Small N. Initially identified as test anxiety based on self report.

CONCLUSIONS/IMPLICATIONS

Results with self report. No low test anxiety in results. Reported that there were no differences post treatment, but no statistics were given.

AUTHOR(S): Melnick, J. & Russell, R. W.
TITLE: Hypnosis versus systematic desensitization in the treatment of test anxiety
SOURCE: Journal of Counseling Psychology, 1976, 23(4), 291-295.

SUBJECTS

Sex:

Volunteer/Psychology students: volunteers from Introductory Psych class

Number: 36

ID of controls: contact and no contact controls

Criteria for inclusion in study: above the 50th percentile on TAQ; midterm grade below .85th percentile

TREATMENT/INTERVENTION

Number of sessions: four

Length of sessions: 45 minutes

Special instructions/rationale: "Ss could expect to benefit scholastically and experimental credit would be given for participation"

Methods/Intervention: 1. Hypnosis 2. Systematic desensitization 3. Contact no treatment control 4. No contact control. Subjects divided into high and moderately high test anxious and matched across groups. (Contact no treatment control group was given study skills literature to read in

Group/Individual: group

sessions.)

Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. TAQ (pre-post) 2. Grade change score between midterm and final exam in target class

Followup: none

Check on Homework: no

RESULTS

Main effect for pre-post TAQ scores, $F(1,32) = 22.34$, $p < .001$. Trend for TAQ x group ($p < .059$) - desensitization differed from control group. t tests for within group differences - desensitization Ss ($p < .05$), hypnosis Ss ($p < .01$). No differences with exam grades - no contact controls had trend of improvement. No interaction effects of treatment and anxiety level.

Statistics Used: ANOVA - 2 way repeated measures. t tests for within group differences.

OTHER ISSUES

Attrition:

Incentives to Ss: experimental credit for course

Methodological Problems: Don't know time span of treatment, i.e., were sessions weekly. Included data of Ss (2) who did not reach criteria for hypnosis. No treatment control may have benefited from learning study skills - should have analyzed separately. No followup. No control for ability or knowledge in the area.

CONCLUSIONS/IMPLICATIONS

Results only on self report measure - no effect on grade change.

AUTHOR(S): Mitchell, K. R. & Ng, K. T.
TITLE: Effects of group counseling and behavior therapy on the academic achievement of test-anxious students
SOURCE: Journal of Counseling Psychology, 1972, 19, 491-497.

SUBJECTS

Sex: not mentioned
Volunteer/Psychology students: Volunteers (sophomores at U. of New South Wales)
Number: 30
ID of controls: same
Criteria for inclusion in study: High motivation, high test anxiety, poor study habits, equal verbal and quantitative aptitudes

TREATMENT/INTERVENTION

Number of sessions: nine (once weekly)
Length of sessions: 50 minutes
Special instructions/rationale:

Methods/Intervention: 1. Desensitization 2. Counseling (re: study skills)
3. Desensitization, then Counseling 4. Desensitization and Counseling
(combined at same time) 5. No treatment control

Group/Individual: group
Homework Assigned: not mentioned

MEASUREMENTS

Dependent Variables: 1. AAT 2. STABS 3. Fear Thermometer 4. General Anxiety (Cattell) 5. Study Habits Survey 6. Course grade. All were administered 6 times prior to, during, and after treatment.
Followup: 12 week and 33 week follow-up
Check on Homework: none mentioned

RESULTS

For test anxiety measures, Groups 1, 3 and 4 were equal and all better than Groups 2 and 5 which were equal. On the study skills measure, Groups 3 and 4 were equal and better than Groups 1, 2 and 5 which were equal. For course grade, Groups 3 and 4 were equal and better than Groups 1, 2 and 5 which were equal.

Statistics Used: Component analysis on the intercorrelations among various measures.

OTHER ISSUES

Attrition: none mentioned
Incentives to Ss: no incentive mentioned; volunteers
Methodological Problems: Self report measures are completed six times. What about reactive effects of repeated testing. Low N per cell (6). Used only high TA Ss who were poor in study skills.

CONCLUSIONS/IMPLICATIONS

"A reduction in TA is no guarantee of a subsequent improvement in academic achievement when the level of study-habit competence is ignored." Suggests that must change study skills in order to reduce TA, but since had no Ss who had good study skills to begin with, this may not be totally accurate.

AUTHOR(S): Morris, L. W. & Fulmer, R. S. (STUDY 1)
TITLE: Test anxiety (worry and emotionality) changes during academic testing as a function of feedback and test importance
SOURCE: Journal of Educational Psychology, 1976, 68(6), 817-824.

SUBJECTS

Sex: unknown
Volunteer/Psychology students: General Psychology students
Number: 55
ID of controls: no treatment
Criteria for inclusion in study: no screening

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: unknown
Special instructions/rationale: not mentioned

Methods/Intervention: All Ss were given a Journal article and told after 20 minutes they would have to answer questions on the article. There were then 2 conditions: (1) no feedback; and (2) feedback - had response boxes on desk and were told by E, item by item verbally, whether correct or not.

Group/Individual: group
Homework Assigned: no

MEASUREMENTS

Dependent Variables: TAS (pre-post) - Worry and Emotionality items only

Followup: no
Check on Homework: no

RESULTS

Feedback x repeated tests ($F = 6.52, p < .05$) with worry.
Repeated tests - pre-post ($F = 13.11, p < .05$) with emotionality.
Repeated tests - pre-post ($F = 8.13, p < .05$) with expectancy.

Statistics Used: 2 x 2 ANOVA (Feedback x Pre-post)

OTHER ISSUES

Attrition: unknown
Incentives to Ss: Ss told performance would have no effect on grade.
Methodological Problems: No initial testing and assignment to groups based on test anxiety, so maybe unequally distributed within groups. E not blind. Test importance not determined operationally. Only one self-report measure given.

CONCLUSIONS/IMPLICATIONS

Authors concluded that uncertainty, even in the context of positive expectations, may elevate worry scores.

AUTHOR(S): Morris, L. W. & Fulmer, R. S. (STUDY 2)

TITLE:

SOURCE: 1976

SUBJECTS

Sex: unknown

Volunteer/Psychology students: General Psychology students

Number: 144

ID of controls:

Criteria for inclusion in study: no screening

TREATMENT/INTERVENTION

Number of sessions: one

Length of sessions: unknown

Special instructions/rationale: not mentioned

Methods/Intervention: Ss in three conditions: (1) machine on desk with feedback; (2) machine on desk with NO verbal feedback; (3) no machine and no feedback, were told either: test had no effect on grade; test can only improve grade; or test can help or hinder grade.

Group/Individual: group

Homework Assigned: no

MEASUREMENTS

Dependent Variables: TAS - before, middle and end of exam. Exam was 30 item multiple-choice on psychology information.

Followup: no

Check on Homework: no

RESULTS

Test importance x worry ($p < .01$).

Test importance x emotionality ($p < .01$).

Test importance x expectation ($p < .05$).

Worry and emotionality went down over time (or with repeated administration) for all Ss.

Statistics Used: 3x3x3 ANOVA

OTHER ISSUES

Attrition: unknown

Incentives to Ss: unknown

Methodological Problems: Performance on test confounded by ability and study time.

Not clear why gave TAS 3 times - so closely given. No initial screening - test anxiety could be confounding results.

CONCLUSIONS/IMPLICATIONS

No distinction between emotionality and worry on test effects.

AUTHOR(S): Morris, L. W. & Liebert, R. M.
TITLE: Effects of anxiety on timed and untimed intelligence tests:
Another look
SOURCE: Journal of Consulting and Clinical Psychology, 1969, 33, 240-244.

SUBJECTS

Sex: not mentioned
Volunteer/Psychology students: Introductory Psychology course
Number: 48
ID of controls: no control group
Criteria for inclusion in study: Upper third and lower third on each of two tests: Taylor Manifest Anxiety Scale and "Experience Questionnaire"

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: not mentioned
Special instructions/rationale: not mentioned

Methods/Intervention: Four groups - aware or unaware of being timed; difficult or easy items (items from first part of test versus later part of test)

Group/Individual: not mentioned
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. 5 worry and 5 emotionality items from TAQ (pre & post).
2. 5 timed subtests of WAIS

Followup: no
Check on Homework: no

RESULTS

Performance was better when S not told test was timed. Interaction of worry and timing - low worry Ss improved when timed, whereas high worry did worse ($p < .02$). Ss did worse on difficult tasks. No significant interaction with emotionality scores. Differences between timed versus untimed and test anxiety not significant.

Statistics Used: ANOVAS

OTHER ISSUES

Attrition: unknown
Incentives to Ss: course credit
Methodological Problems: No control group. No control for S anxiety on subtests. No breakdown of sex of Ss. Intelligence tests are supposed to evaluate trait intelligence and therefore may not be best measure to study effects of test anxiety.

CONCLUSIONS/IMPLICATIONS

Basically found that being told that test was timed has an inhibitory effect (slight) on high anxious Ss and a facilitating effect on low anxious Ss. Strongest results were found with low worry Ss.

STUDY 1

AUTHOR(S): Morris, L. W. & Liebert, R. M.
TITLE: Relationship of cognitive and emotional components of test anxiety to physiological arousal and academic performance
SOURCE: Journal of Consulting and Clinical Psychology, 1970, 35(3), 332-337.

SUBJECTS

Sex: unknown
Volunteer/Psychology students: Introductory Psychology students
Number: 95
ID of controls: no control group
Criteria for inclusion in study: none

TREATMENT/INTERVENTION

Number of sessions: three
Length of sessions: unknown
Special instructions/rationale: not mentioned

Methods/Intervention: Correlate pulse rate with TAQ and course exam

Group/Individual: group
Homework Assigned: none

MEASUREMENTS

Dependent Variables: 1. TAQ (pre-post) 2. One expectancy question 3. Each Ss told to count and record own pulse during four, 15 second periods

Followup: no
Check on Homework: no

RESULTS

Worry and emotionality scores correlated with each other; correlations between emotionality and pulse rate and worry and pulse rate significant and did not differ significantly from each other. No relationship found with TAQ, pulse rate and grade.

Statistics Used: Used difference scores in pulse rate; Pearson done using partial correlations

OTHER ISSUES

Attrition: unknown
Incentives to Ss: unknown
Methodological Problems: Pulse rate method unreliable - self report with little control, some students erred in procedure so their pulse rate was averaged. No control group. E not blind to condition. No control for preparation on exam. All self report measures used.

CONCLUSIONS/IMPLICATIONS

Authors concluded that, overall, heart rate and pulse rate no more related to emotionality than worry.

AUTHOR(S): Morris, L. W. & Liebert, R. M.

TITLE:

SOURCE:

SUBJECTS

Sex: unknown

Volunteer/Psychology students: seniors in high school

Number: 91

ID of controls: no controls

Criteria for inclusion in study: none used

TREATMENT/INTERVENTION

Number of sessions: unknown

Length of sessions: unknown

Special instructions/rationale: not mentioned

Methods/Intervention: Same as Study 1. Pulse rate relationship to TAQ and taking an exam. Procedure same as Study 1 only TAQ given prior to self reported pulse rate.

Group/Individual: group

Homework Assigned: none

MEASUREMENTS

Dependent Variables: 1. TAQ (pre-post) 2. Each subject told to count and record own pulse during four, 15 second periods.

Followup: recorded "resting data" after one month

Check on Homework: no

RESULTS

No effect of order of giving TAQ or pulse rate. Found correlation between emotionality score and pulse rate change ($p < .05$).

Statistics Used: difference scores for pulse rate. Partial correlation used.

OTHER ISSUES

Attrition: unknown

Incentives to Ss: unknown

Methodological Problems: Unreliable pulse rate procedure. No control group.

All self report measures. Experimenter not blind. Combined data with Study 1, even though populations quite different.

CONCLUSIONS/IMPLICATIONS

Authors conclude that pulse rate is no more related to emotionality than worry scores.

AUTHOR(S): Morris, L. W. & Liebert, R. M.
TITLE: Effects of negative feedback, threat of shock and level of trait anxiety on the arousal of two components of anxiety
SOURCE: Journal of Counseling Psychology, 1973, 20(4), 321-326.

SUBJECTS

Sex: males
Volunteer/Psychology students: volunteers from sociology and psychology courses
Number: unknown
ID of controls: unknown
Criteria for inclusion in study: Anxiety trait items on State-Trait Anxiety Inventory - high, medium, low - upper, middle or lower quartile.

TREATMENT/INTERVENTION

Number of sessions: two
Length of sessions: unknown
Special instructions/rationale: "testing how various things affect a person's performance on an intelligence task"

Methods/Intervention: All subjects were given Digits Backwards and then one of three feedbacks 1. Failure-threat - told should be quicker and try harder; (2) Shock-threat - doing well and would receive strong electric shocks between trials; (3) No threat - told doing fine.

Group/Individual: group
Homework Assigned: none

MEASUREMENTS

Dependent Variables: 1. Digits Backward Test (pre-post) 2. State Trait Anxiety Inventory 3. TAQ 4. Ss took their own pulse rate after questionnaire completed

Followup: none
Check on Homework: none

RESULTS

No effect on pulse rate. Main effect for Anxiety Trait level ($p < .001$) - high and medium did not differ - but both groups differed from low ($p < .05$). Between S effect for Anxiety Trait ($p < .05$) - low Anxiety Trait Ss had lower combined worry and emotionality scores than other groups ($p < .05$). Conditions x Measures ($p < .005$).

Statistics Used: ANOVA

OTHER ISSUES

Attrition: unknown
Incentives to Ss: unknown
Methodological Problems: Number of subjects not given. Pulse rate procedure lacks reliability. E not blind.

CONCLUSIONS/IMPLICATIONS

No differences between shock and no treatment conditions.
No effects of emotionality and conditions. Rationale for shock not clear.

AUTHOR(S): Morris, L. W. & Perez, T. L.
TITLE: Effects of test interruption on emotional arousal and performance
SOURCE: Psychological Reports, 1972, 31, 559-564.

SUBJECTS

Sex: unknown
Volunteer/Psychology students: volunteers from Introduction to Psychology class
Number: of 279 who took the TAQ, 78 volunteered
ID of controls: no treatment
Criteria for inclusion in study: TAQ - high or low test anxiety status determined by whether above or below the median

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: unknown
Special instructions/rationale: not mentioned
Methods/Intervention: 3 interventions made 5 minutes into class exam period and 15 minutes into class exam period. One group received "irrelevant" interruptions - given wrong pencils and poll taken; one group received "relevant" interruption of being told to close book and sit quietly and one group - "control" - received no interruptions.

Group/Individual: not mentioned
Homework Assigned: no

MEASUREMENTS All measures were given post only.

Dependent Variables: First half of Davis Reading Test (except untimed); 2 Questionnaires about how S felt while working on exam; Worry-Emotionality Scale (Morris & Liebert); MAACL

Followup: no
Check on Homework: no

RESULTS Those Ss receiving "irrelevant" interruption more hostile on the MAACL than those receiving "relevant" interruption. High test anxious Ss had higher scores on the Worry-Emotionality Scale. No effects on test performance in any condition.

Statistics Used: ANOVA - and combined all Ss without regard to intervention for Pearson correlations

OTHER ISSUES

Attrition: not mentioned
Incentives to Ss: volunteers
Methodological Problems: Did not give median for TAQ; Post only measures - no control for ability, etc; E not blind; rationale for making interruptions not strong and criteria for labeling of one intervention as "relevant" and other "irrelevant" confusing.

CONCLUSIONS/IMPLICATIONS

No performance test effects. No interruption effects found other than that Ss who are interrupted for irrelevant reasons become more hostile. The correlation between TAQ and Worry-Emotionality Scale to be expected because W-E items taken from the TAQ.

AUTHOR(S): Parish, T. S., Buntman, A. D. & Buntman, S. R.
TITLE: Effect of counterconditioning on test anxiety as indicated by digit span performance
SOURCE: Journal of Educational Psychology, 1976, 68, 297-299.

SUBJECTS

Sex: 39 males, 36 females
Volunteer/Psychology students: 5th and 6th graders
Number: 75
ID of controls: same
Criteria for inclusion in study: All in class participated.

TREATMENT/INTERVENTION

Number of sessions: four (in 8 days)
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: 1. Counterconditioning procedure (paired classroom scenes with positive events (a positive word) 2. Placebo (classroom scenes but no positive word followed) 3. Control (No-treatment)

Group/Individual: group
Homework Assigned: not mentioned

MEASUREMENTS

Dependent Variables: 1. Digit Span (WISC) 2. Vocabulary (WISC)
Both administered once at post-treatment.

Followup: no
Check on Homework: none mentioned

RESULTS

For Digit Span, Group 1 did sign. better than Groups 2 and 3. There were no sex differences on Digit Span. On Vocabulary, all groups were equal, but boys scored higher than females.

Statistics Used: Analysis of variance

OTHER ISSUES

Attrition: none reported
Incentives to Ss: none reported
Methodological Problems: Test anxiety was never assessed pre or post. The authors assume they have influenced test anxiety.

CONCLUSIONS/IMPLICATIONS

Digit Span seems to be more affected by anxiety than Vocabulary.

AUTHOR(S): Paul, P. B., Matthews, R. W. & Chernick, L.
TITLE: The effects of group size and anxiety on IQ scores

SOURCE: Paper presented at Midwestern Psychological Association, St. Louis, May, 1980.

SUBJECTS

Sex: males and females
Volunteer/Psychology students: volunteers from subject pool
Number: 95
ID of controls: same
Criteria for inclusion in study: TAQ (lower and upper 1/3 of entire psychology subject pool).

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: 30 minutes
Special instructions/rationale:

Methods/Intervention: 2 (Test Anxiety: High, Low) x 3 (Form of Testing: Alone, Group of 4, Group of 8)

Group/Individual: both
Homework Assigned: not relevant

MEASUREMENTS

Dependent Variables: 1. Self report Re: Feelings of anxiousness, feeling crowded, etc. (pre and 15 mins. into exam) 2. Otis IQ test

Followup: no
Check on Homework: not relevant

RESULTS

Group size increases feelings of being crowded. No TA by group size interactions on the crowding measure. Main effect for TA such that high TA Ss reported less comfort and pleasure than low TA Ss. On the Otis IQ scale, high TA Ss did worse than low TA Ss. Alone and Group of 4 were equal and better than Group of 8 on Otis IQ test.

Statistics Used: Analysis of variance

OTHER ISSUES

Attrition: none
Incentives to Ss: not mentioned
Methodological Problems: Used extreme scores on TA, thus is possible regression to the mean might have occurred,

CONCLUSIONS/IMPLICATIONS

Implies when giving major tests (esp. SAT and ACT) keep group size down to minimize negative effects. However group size did not interact with text anxiety.

AUTHOR(S): Phares, E. J.
TITLE: Test anxiety, expectancies, and expectancy changes
SOURCE: Psychological Reports, 1968, 22, 259-265.

SUBJECTS

Sex: 80 females
Volunteer/Psychology students: Psychology Ss, but received pay
Number: 80
ID of controls: none
Criteria for inclusion in study: TAQ (median split)

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: not mentioned
Special instructions/rationale: Ss told study was on emotions (rated photographs for emotions)
Methods/Intervention: 2 Test Anxiety (high & low) by 2 Feedback (success and failure)

Group/Individual: individual
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. Ss expectancy estimates (pre and post feedback) 2. TAQ (post)

Followup: no
Check on Homework: no

RESULTS

High TA Ss gave lower expectancy ratings than did Low TA Ss. After failure feedback, High TA Ss had worse expectancy ratings than did Low TA Ss. After success feedback, High TA Ss and Low TA Ss had equal expectancy estimates. Same results for TAQ

Statistics Used: t tests and analysis of variance

OTHER ISSUES

Attrition:
Incentives to Ss: Paid for participation
Methodological Problems: Females only. Divided into high and low test anxiety after the experimental procedure.

CONCLUSIONS/IMPLICATIONS

High TA Ss have lower expectancies of success than Low TA Ss. TA has a variety of cognitive components that need to be accounted for.

AUTHOR(S): Reed, R. & Meyer, R. G.
TITLE: Reduction of test anxiety via autogenic therapy
SOURCE: Psychological Reports, 1974, 35, 649-650.

SUBJECTS

Sex: females only
Volunteer/Psychology students: college students (self-referred)
Number: 21
ID of controls: none used
Criteria for inclusion in study: self-referred

TREATMENT/INTERVENTION

Number of sessions: over three weeks
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: 1. Autogenic training with active rationale
2. Autogenic training with passive rationale

Group/Individual: individual
Homework Assigned: asked to keep a diary

MEASUREMENTS

Dependent Variables: 1. Test Anxiety Questionnaire (Osipow & Kreinbring, 1971)
2. Wonderlic Personnel Test (WPT) 3. Self-report of test anxiety

Followup: not mentioned
Check on Homework: not mentioned

RESULTS

Both groups significantly reduced TAQ scores from pre to post, with active group showing most change. No changes on the WPT.

Statistics Used: Analysis of variance (repeated measures)

OTHER ISSUES

Attrition: 3 of 21
Incentives to Ss: self-referred
Methodological Problems: No control group.

CONCLUSIONS/IMPLICATIONS

"Calls into question...the importance of Schultz and Luthe's emphasis on passive concentration."

AUTHOR(S): Reed, M. & Saslow, C.
TITLE: The effects of relaxation instructions and EMG Biofeedback on test anxiety, general anxiety, and locus of control
SOURCE: Journal of Clinical Psychology, 1980, 26(3), 683-690.

SUBJECTS

Sex: 6 males and 21 females
Volunteer/Psychology students: volunteers
Number: 27
ID of controls: same
Criteria for inclusion in study: volunteers from high test anxious on AAT

TREATMENT/INTERVENTION

Number of sessions: eight (two per week)
Length of sessions: thirty minutes
Special instructions/rationale:

Methods/Intervention: 1. Biofeedback (EMG) 2. Relaxation Instruction Alone
3. No treatment control (NTC)

Group/Individual: individual
Homework Assigned: not mentioned

MEASUREMENTS

Dependent Variables: 1. AAT 2. STAI 3. Rotter Locus of Control 4. EMG (frontalis)

Followup: no
Check on Homework: not mentioned

RESULTS

No between group differences were found on any measures. For within group changes, the EMG group decreased on AAT and STAI stage. The relaxation only group decreased on STAI state and STAI trait and almost on locus of control. The control group showed no significant within group change.

Statistics Used: One-way ANOVA on pre to post change scores and two-tailed t tests to examine within group changes

OTHER ISSUES

Attrition: none mentioned
Incentives to Ss: volunteers
Methodological Problems: The stronger statistical test (ANOVA) showed no significant differences. Only showed up when t tests used. At times used > .10 significance level.

CONCLUSIONS/IMPLICATIONS

Biofeedback doesn't seem to add much more to regular relaxation training. Relaxation training without biofeedback led to more internal feelings of control.

AUTHOR(S): Kibordy, S. C., Tracy, R. J., & Bernotas, T. D.
TITLE: The effects of an attentional training procedure on the performance of high and low test anxious children
SOURCE: Cognitive Therapy and Research, in press.

SUBJECTS

Sex: 25 females, 23 males
Volunteer/Psychology students: grades 4, 5, 6
Number: 48
ID of controls: same
Criteria for inclusion in study: membership in class - divided at median on TASC (high mean = 18.2, low mean = 10.2)

TREATMENT/INTERVENTION

Number of sessions: two (2 weeks apart)
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: Matched on sex and grade, then randomly assigned to (1) attentional training (AT); (2) placebo training (PT); and (3) no-training control (NTC). Half Ss in each group were high test anxious, half were low test anxious.

Group/Individual: pretesting (group), training (individual)
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. Stroop Color Word Test 2. Central-Incidental Task (generalization measure)

Followup: no
Check on Homework: not relevant

RESULTS

Test anxiety was found to increase with grade, but primarily among high test anxious children. After training the high test anxious Ss in AT group performed as well as low Ss, while in the PT or NTC groups highs continued to perform worse than lows on the Stroop. No diff. found for the Central-Incidental Task.

Statistics Used: ANOVA

OTHER ISSUES

Attrition: not mentioned
Incentives to Ss: not mentioned
Methodological Problems: No follow-up, low N per cell (8)

CONCLUSIONS/IMPLICATIONS

Supports Wine's (1971) contention that test anxiety involves an attentional deficit. The results of this study were very specific - found only on the task on which the children received their training. No generalization to a second task was found.

AUTHOR(S): Richardson, F. C., O'Neil, H. F., Whitmore, S. & Judd, W. A.
TITLE: Factor analysis of the TAS and evidence concerning the components of test anxiety.
SOURCE: Journal of Consulting and Clinical Psychology, 1977, 45(4), 704-705.

SUBJECTS

Sex: male and female
Volunteer/Psychology students: undergraduate Educational Psychology students
Number: 839 females, 361 males - 1200 total
ID of controls:
Criteria for inclusion in study:

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions:
Special instructions/rationale:

Methods/Intervention: Large number of students merely completed the TAS during classes.

Group/Individual: group
Homework Assigned: not relevant

MEASUREMENTS

Dependent Variables: TAS

Followup: not relevant
Check on Homework: not relevant

RESULTS Factor Analysis of TAS: Factor 1: 53.45% of variance defined as cognitive concern about oneself and one's performance on tests and consequences of this worry (consequence means the physical and emotional reactions and interfered cognitive functioning). Factor 2: 31.50% of variance reaction of emotional distress or aversion to stress of tests. Items were placed so 16-item subtest of Factor 1 and 14-item subtest of Factor 2 - negative correlation between two was significant ($p < .001$). Sixteen-item scale has high internal consistency reliability ($\alpha = .90$).

Statistics Used:

OTHER ISSUES

Attrition: unknown
Incentives to Ss: unknown
Methodological Problems:

CONCLUSIONS/IMPLICATIONS

Results don't support the two component view of test anxiety proposed by Liebert and Morris. In this study, those Ss who WORRY about self and performance ALSO experience emotionality and intense autonomic reactions.

AUTHOR(S): Richardson, F. C. & Suinn, R. M.
TITLE: Effects of two short-term desensitization methods in the treatment of test anxiety
SOURCE: Journal of Counseling Psychology, 1974, 21(5), 457-458.

SUBJECTS

Sex:
Volunteer/Psychology students: university students via advertisement
Number: 44
ID of controls: same
Criteria for inclusion in study: response to advertising in school newspaper

TREATMENT/INTERVENTION

Number of sessions: varied according to group
Length of sessions: six hours over entire treatment
Special instructions/rationale:

Methods/Intervention: 1. SD 2. Anxiety Management Training 3. Accelerated Massed Desensitization 4. Waiting List Control

Group/Individual: group
Homework Assigned: none mentioned

MEASUREMENTS

Dependent Variables: 1. STABS 2. FSS Both were administered pre and post.

Followup: no
Check on Homework: none mentioned

RESULTS

On STABS, all 3 treatment groups were significantly better than Control. Also SD significantly better than Anxiety Management Training. On differences on FSS.

Statistics Used: Analysis of covariance

OTHER ISSUES

Attrition: 4 of 44
Incentives to Ss: not mentioned
Methodological Problems: Only used self-report measures.

CONCLUSIONS/IMPLICATIONS

Since Accelerated Massed Desensitization just as effective as traditional SD, "the use of a carefully graduated hierarchy and the signaling of anxiety may not be necessary and may even hamper the attainment of self-control."

AUTHOR(S): Romano, J. L. & Cabisianca, W. A.
TITLE: EMG biofeedback training versus systematic desensitization for test anxiety reduction
SOURCE: Journal of Counseling Psychology, 1978, 25(1), 8-13.

SUBJECTS

Sex: "predominately female"
Volunteer/Psychology students: students in education courses
Number: 40
ID of controls: same
Criteria for inclusion in study: 70th percentile or above on STABS

TREATMENT/INTERVENTION

Number of sessions: 13 over 5 weeks
Length of sessions: 20 minutes
Special instructions/rationale:

Methods/Intervention: 1. EMG biofeedback with SD 2. EMG biofeedback relaxation training 3. Automated SD 4. No treatment control

Group/Individual: individual
Homework Assigned: 20 minutes relaxation practice daily

MEASUREMENTS

Dependent Variables: Post treatment measures only for: 1. TAS 2. Anagrams
3. STABS

Followup: no
Check on Homework: not mentioned

RESULTS

On STABS and TAS, treatment groups better than control. No diff. on anagrams. All treatment groups were equal on all measures.

Statistics Used: Multivariate analysis of variance

OTHER ISSUES

Attrition: none dropped out
Incentives to Ss:
Methodological Problems: No control for expectancies (need a placebo group).
Results only on self-report measures. No premeasures on TAS or anagrams.
No check to see if biofeedback actually reduced arousal over treatment.

CONCLUSIONS/IMPLICATIONS

EMG facilitated relaxation training or relaxation training as effective as traditional SD, however more sessions used than is usual in SD studies. The extra effort needed to administer EMG biofeedback did not yield extra results.

AUTHOR(S): Russell, R. K., Miller, D. E. & June, L. N.
TITLE: Group cue-controlled relaxation in the treatment of test anxiety
SOURCE: Behavior Therapy, 1974, 5, 572-573.

SUBJECTS

Sex: 2 males, 7 females
Volunteer/Psychology students: unknown
Number: 9
ID of controls: none
Criteria for inclusion in study: none

TREATMENT/INTERVENTION

Number of sessions: 5 weekly sessions
Length of sessions: unknown
Special instructions/rationale: unknown

Methods/Intervention: Only cue control for all Ss.

Group/Individual: two groups
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. TAS 2. SAI (both pre and post)

Followup: none
Check on Homework: none

RESULTS

TAS decreased pre-post ($t = 4.36, p < .01$).
STAI (trait form) decreased pre-post ($t = 2.56, p < .05$).

Statistics Used: t-tests

OTHER ISSUES

Attrition: unknown
Incentives to Ss: unknown
Methodological Problems: No controls; no comparison group; no control for placebo effects; only self report data; subjects not screened for test anxiety; E not blind to condition; little information about treatment.

CONCLUSIONS/IMPLICATIONS

Difficult to assess meaning of results.

AUTHOR(S): Russell, R. K., Miller, D. E. & June, L. N.
TITLE: A comparison between group systematic desensitization and cue-controlled relaxation in the treatment of test anxiety
SOURCE: Behavior Therapy, 1975, 6, 172-177.

SUBJECTS

Sex: male and female
Volunteer/Psychology students: ad in paper and Counseling Center referral
Number: 40
ID of controls: waiting list
Criteria for inclusion in study: two years at the university

TREATMENT/INTERVENTION

Number of sessions: six weekly
Length of sessions: one hour
Special instructions/rationale: not mentioned

Methods/Intervention: 3 conditions: (1) systematic desensitization; (2) cue-controlled relaxation; (3) no treatment controls.

Group/Individual: 3-5 Ss per group
Homework Assigned: told to practice procedure daily

MEASUREMENTS

Dependent Variables: All were administered pre and post: 1. TAS 2. STAI-Trait 3. S-R Inventory of Anxiety 4. Exam 5. Speech forms 6. GPA

Followup: no
Check on Homework: no

RESULTS

Treatment groups were significantly different from controls in decrease of TAS ($F = 8.12, p < .01$) and S-R Inventory ($F = 10.74, p < .01$). Other measures showed no results.

Statistics Used: Analysis of covariance and Planned comparisons on change scores

OTHER ISSUES

Attrition: 9 Ss failed to complete treatment procedures
Incentives to Ss: unknown
Methodological Problems: High attrition; no attention-placebo control; no inclusion criteria; E not blind to conditions; self report measures primarily.

CONCLUSIONS/IMPLICATIONS

No differences between treatments. Change present is on self-report measures and not grades.

AUTHOR(S): Russell, R. K. & Sipich, J. F.
TITLE: Cue-controlled relaxation in the treatment of test anxiety
SOURCE: Behavior Therapy and Experimental Psychiatry, 1973, 4, 47-49.

SUBJECTS

Sex: female only
Volunteer/Psychology students: A single volunteer (21 yr. old college student)
Number: one
ID of controls: none
Criteria for inclusion in study: Interview data, S-R Inventory of Anxiousness

TREATMENT/INTERVENTION

Number of sessions: five, weekly
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: Cue-controlled (conditioned) relaxation training

Group/Individual: individual
Homework Assigned: yes (each night - after 4th session, asked to practice in vivo)

MEASUREMENTS

Dependent Variables: S-R Inventory of Anxiousness (pre and 10 week followup)

Followup: 1 week and 10 weeks
Check on Homework: not mentioned

RESULTS

S-R Inventory dropped from 3.0 pre to 1.8 followup. S reported treatment effects generalized to insomnia problems before tests.

Statistics Used: none - merely reported scores

OTHER ISSUES

Attrition: no
Incentives to Ss: volunteer
Methodological Problems: N of one, no statistics, reliance on self-report.

CONCLUSIONS/IMPLICATIONS

Mostly a study to illustrate the method of cue-controlled relaxation.

AUTHOR(S): Russell, R. K. & Sipich, J. F. (CASE REPORT)
TITLE: Treatment of test anxiety by cue-controlled relaxation
SOURCE: Behavior Therapy, 1974, 5, 675-676.

SUBJECTS

Sex: 18-year-old female
Volunteer/Psychology students: student
Number: one
ID of controls:
Criteria for inclusion in study:

TREATMENT/INTERVENTION

Number of sessions: five weekly
Length of sessions:
Special instructions/rationale:

Methods/Intervention: Two parts: deep muscle relaxation and pairing relaxed state with specific self-produced cue work "calm" - 15 to 20 pairings per session.

Group/Individual: individual
Homework Assigned: no

MEASUREMENTS

Dependent Variables: All of the following are pre and post: 1. TAS 2. STAI 3. Anxiety Differential 4. WAIS subtests - Digit Span, Arith., Block Design 5. Exam grades 6. GPA
Followup: no
Check on Homework: no

RESULTS

Self reports of anxiety decreased.
Arithmetic and Block Design improved.
Grades improved.

Statistics Used: no statistical analysis done

OTHER ISSUES

Attrition:
Incentives to Ss:
Methodological Problems:

CONCLUSIONS/IMPLICATIONS

Only a case study: demonstrates procedures but difficult to assess effects and any possible placebo effects.

AUTHOR(S): Russell, R. K., Wise, F., & Stratoudakis, J. P.
TITLE: Treatment of test anxiety by cue-controlled relaxation and systematic desensitization
SOURCE: Journal of Counseling Psychology, 1976, 23(6), 563-566.

SUBJECTS

Sex: unknown
Volunteer/Psychology students: answered ad in campus newspaper
Number: 23
ID of controls: waiting list
Criteria for inclusion in study: self selection by answering ad

TREATMENT/INTERVENTION

Number of sessions: five sessions - one per week
Length of sessions: 45 minutes for desensitization, 30 minutes for cue control
Special instructions/rationale: not mentioned

Methods/Intervention: 1. Systematic desensitization (standard 12-item hierarchy)
2. Cue-controlled relaxation 3. No treatment control

Group/Individual: group - two or three Ss per group
Homework Assigned: told to practice daily

MEASUREMENTS

Dependent Variables: All of following given pre-post: 1. TAS 2. S-R Inventory of Anxiousness, State-Trait-Trait only 3. WAIS subtests - information, digit span, block design 4. Cardall Arith. Reason Test - Math subtest 5. College qualification test -
Followup: no vocab. subtest 6. Anxiety differential
Check on Homework: no

RESULTS

SD reduced in test anxiety as measured on self report measures - TAS ($p < .01$), S-R Inventory of Anxiousness ($p < .05$), State-Trait-Trait form ($p < .05$). Cue controlled reduced on State-Trait-Trait form only ($p < .05$). Measure for state anxiety (AD_1 & AD_2) given before and after behavioral test showed improvement for treatment groups ($p < .05$). No significant difference for behavioral measures.

Statistics Used: Did an ANOVA, but did not present statistics - Results based on a series of t tests.

OTHER ISSUES

Attrition: two
Incentives to Ss: unknown

Methodological Problems: E not blind to conditions. Small N per group. ANOVA would have been more appropriate than repeated t tests. No followup. Measures may lack external validity. No placebo control.

CONCLUSIONS/IMPLICATIONS

No difference on behavioral measures - must question whether reduction in state anxiety improves performance - this relationship is not clear. Not clear how anxiety producing the testing condition was because there was no payoff for performance.

AUTHOR(S): Sarason, I. G.
TITLE: Intellectual and personality correlates of test anxiety
SOURCE: Journal of Abnormal and Social Psychology, 1959, 59, 272-275.

SUBJECTS

Sex: 309 males; 67 females
Volunteer/Psychology students: Psychology classes, ROTC
Number: 376
ID of controls: none
Criteria for inclusion in study: membership in classes

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: All Ss completed same tests under same conditions.

Group/Individual: group, during class
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. Sarason's Test Anxiety (TA) 2. Lack of Protection Scale (LP)
3. MAS (short-form) 4. Edward's Social Desirability Scale (SDS) 5. HS English GPA
6. HS Math GPA 7. HS Foreign Lang. GPA 8. HS Social Science GPA 9. HS Nat. Sci.
GPA 10. HS elective GPA 11. Verbal subscales of Guilford-Zimmerman Aptitude 12.
Mechanical subscales of Guilford-Zimmerman Aptitude 13. Cooperative English Usage
Followup: no 14. Math Usage Scale 15. Social Science Usage Scale
Check on Homework: no

RESULTS

TA not highly correlated with general anxiety measures. TA less correlated with SDS than general anxiety measures are. TA more highly correlated with intellectual measures than general anxiety measures were.

Statistics Used: Correlations

OTHER ISSUES

Attrition: no
Incentives to Ss: not mentioned
Methodological Problems: Correlational. Only used one TA scale which was a forerunner to the TAS.

CONCLUSIONS/IMPLICATIONS

This was an early study designed to show TA was distinct from general anxiety.

AUTHOR(S): Sarason, I. G.
TITLE: Test anxiety and cognitive modeling
SOURCE: Journal of Personality and Social Psychology, 1973, 28(1), 58-61.

SUBJECTS

Sex: females
Volunteer/Psychology students: Introductory Psychology students
Number: 120; 15 Ss per condition
ID of controls: waiting list
Criteria for inclusion in study: TAS - short form - median division (7).

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: not mentioned
Special instructions/rationale: not mentioned

Methods/Intervention: 4 conditions: (1) performance only modeling - Ss just watched as problems were solved; (2) performance and verbalization modeling - model stated rationale; (3) performance, verbalization, and principles - general principles were also stated; (4) no treatment controls.

Group/Individual: individual
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. Anagrams (post)

Followup: no
Check on Homework: no

RESULTS

Two main effects and their interactions were significant:
Low test anxious Ss performed better ($p < .05$). Conditions 2 and 3 performed better than conditions 1 and 4 ($p < .01$). Test anxiety $\times$ treatment ($p < .001$). Low test anxious Ss did better under every condition except condition 3 where high test anxious Ss performed better.

Statistics Used: ANOVA

OTHER ISSUES

Attrition: unknown
Incentives to Ss: unknown
Methodological Problems: Es were also live models for conditions. Post only design does not control for ability which might confound with anxiety and method.

CONCLUSIONS/IMPLICATIONS

Gives support for using a cognitive modeling procedure in treating test anxiety.

AUTHOR(S): Sarason, E. G.
TITLE: Test anxiety and the self-disclosing coping model
SOURCE: Journal of Consulting and Clinical Psychology, 1975, 43(2), 148-153.

SUBJECTS

Sex: females
Volunteer/Psychology students: Introduction to Psychology students
Number: 200
ID of controls: random assignment
Criteria for inclusion in study: TAS - upper and lower quarters of score distribution
(20-37 and 1-11).

TREATMENT/INTERVENTION

Number of sessions: } 16 trials - 2 second exposure per syllable and
Length of sessions: } 6 second intertrial interval
Special instructions/rationale: not mentioned

Methods/Intervention: Serial learning task - memory drum - 16 3-letter nonsense syllables: 5 modeling situations (1) coping anxiety model; (2) noncoping anxiety model; (3) low anxiety model; (4) neutral model; (5) control (no modeling done). Half of each group were given achievement-orienting instructions.

Group/Individual: individual
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. Correct responses on the drum (post only)

Followup: none
Check on Homework: none

RESULTS

Main effects for test anxiety $F(1,180) = 8.32, p < .01$, and conditions $F(4,180) = 7.60, p < .01$, coping anxious model most effective, $F(4,180) = 5.24, p < .01$. Also results with test anxiety and instructions, $F(1,180) = 8.43, p < .01$. The two types of instructions had opposite effects on high and low test anxious students - low test anxious were motivated by achievement instruction, high Ss were inhibited by achievement instructions.

Statistics Used: 2 x 5 x 2 ANOVA

OTHER ISSUES

Attrition:
Incentives to Ss:
Methodological Problems: Post only design. Should have checked to make sure subjects were equal in ability prior to intervention. No credibility check on modeling (did Ss attend to model?). Task has little similarity to typical academic testing situations.

CONCLUSIONS/IMPLICATIONS

Coping anxious model can be the most easily identified with for high test anxious Ss. Not clear if any of the interventions (besides the achievement motivating instructions) helped improve low test anxious Ss' scores.

AUTHOR(S): Sarason, I. G. & Ganzer, V. J.
TITLE: Anxiety, reinforcement, and experimental instructions in a free verbalization situation
SOURCE: Journal of Abnormal and Social Psychology, 1962, 65(5), 300-307.

SUBJECTS

Sex: 48 females, 48 males
Volunteer/Psychology students: Psych. Ss
Number: 96
ID of controls: same
Criteria for inclusion in study: TAS (upper and lower 20%)
Upper = 9 and above; Lower = 2 and below

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: forty minutes
Special instructions/rationale:

Methods/Intervention: Ss asked to give 40 mins. verbal description of themselves (10 min. baseline, 30 min. operant period). 1. Pos. reinforcement for making positive self-statements 2. Pos. reinforcement for making negative self-statements 3. No reinforcement. Also 1/2 Ss given Threat pre-instructions (material for clinical reasons)

Group/Individual: individual and 1/2 Ss given Non-Threat pre-instructions (no interpret. of material would be made)
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. TAS (pre-post) 2. Pos. Self-referents 3. Negative Self-referents 4. Ambiguous Self-referents 5. Other Self-referents

Followup: no
Check on Homework: no

RESULTS

Only results RE: TA reported in this article. High TA emitted more negative self referents at baseline than low TA. High TA under Threat were more responsive to reinforcement for negative self referents than High TA in Non-Threat condition.

Statistics Used: 2 x 2 x 2 x 3 ANOVA

OTHER ISSUES

Attrition: none mentioned
Incentives to Ss: course credit
Methodological Problems: Low n per cell (4 per cell)

CONCLUSIONS/IMPLICATIONS

High test anxious individuals have high incidence of negative self-verbalizations.

AUTHOR(S): Sarason, I. G. & Ganzer, V. J.
TITLE: Effects of test anxiety and reinforcement history on verbal behavior
SOURCE: Journal of Abnormal and Social Psychology, 1963, 67, 513-519.

SUBJECTS

Sex: 24 males, 24 females
Volunteer/Psychology students: Psychology Ss
Number: 48
ID of controls: same
Criteria for inclusion in study: Upper and lower 1/4 on TAS
Highs = 9-14, Lows = 0-2

TREATMENT/INTERVENTION

Number of sessions: two
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: 2 Sex (male, female) by 2 Test Anxiety (high, low)
by 4 Reinforcement Conditions

Group/Individual: individual
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. K scale of MMPI (pre-post) 2. TAS (pre-mid-post) 3. Sense of Well Being (WB) (pre-post) 4. Psychological Mindedness (Py) (pre-post) 5. % of negative self-referents 6. % of pos. self referents 7. % of ambiguous self-referents 8. % other self-referents
Followup: no
Check on Homework: no

RESULTS Only results RE: TA variable reported in this article. High TA emitted more negative self referents than low TA. Over 3 times high TA completed TAS, their scores decreased, while for low TA their TAS scores increased. No difference between Highs and Lows on K scale, WB, or Py. High TA Ss more sensitive to reinforcement of negative statements, especially over two days.

Statistics Used: analysis of variance

OTHER ISSUES

Attrition: not mentioned
Incentives to Ss: course credit
Methodological Problems: Low N (3 per cell)

CONCLUSIONS/IMPLICATIONS

Over repeated testings on TAS, extreme scores tend to regress toward mean. This needs to be taken into account whenever using extreme scores. High TA Ss seem to emit more negative self-statements and are more sensitive to reinforcement of these statements than low TA Ss.

AUTHOR(S): Sarason, I. G., Pederson, A. M., & Nyman, B.
TITLE: Test anxiety and the observation of models
SOURCE: Journal of Personality and Social Psychology, 1972, 22(3), 493-511.

SUBJECTS

Sex: females
Volunteer/Psychology students: Introductory Psychology course
Number: 252
ID of controls: randomly selected
Criteria for inclusion in study: TAS divided into high, medium and low test

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: unknown
Special instructions/rationale: verbal learning experiment

Methods/Intervention: Observed live, trained models. 7 Conditions: 1. Observational condition 2. Reverse observational condition 3. Observation-drum absent 4. Rating condition 5. Orientation condition 6. Task observation condition (control) 7. No treatment control

Group/Individual: individual
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. 2 verbal learning tests used (pre & post); 25 trials for list A (pre), 15 trials for list B (post).

Followup: no
Check on Homework: no

RESULTS

Conditions effect ($F = 5.4$, $p < .01$) - observations and reverse observations conditions superior to other groups. Trials ($F = 17.443$, $p < .01$) and conditions x trials ($F = 2.5$, $p < .01$) effects found. No difference due to test anxiety levels on first trials. High and medium test anxious Ss showed more improvement ($F = 3.6$, $p < .05$). Improvement greater for observation and reverse observations conditions than other conditions ($F = 14.8$, $p < .01$).

Statistics Used: ANOVAS

OTHER ISSUES

Attrition: unknown
Incentives to Ss: unknown
Methodological Problems: Female Ss only; not clear how similar responding to drum of words is to taking a test; not clear what coping techniques were taught.

CONCLUSIONS/IMPLICATIONS

Theoretical definition of anxiety and test anxiety specifically presented. Authors conclude that modeling has an effect on learning, but one must direct the learning and focus the subject.

AUTHOR(S): Sarason, I. G. & Stoops, R.
TITLE: Test anxiety and the passage of time
SOURCE: Journal of Consulting and Clinical Psychology, 1978, 46, 102-109.
 (This article contains three studies)

SUBJECTS

Sex: 48 males, 48 females
Volunteer/Psychology students: Psychology students
Number: 96
ID of controls: same
Criteria for inclusion in study: TAS (upper & lower 15% and mid 15%)
 Highs = 26 or more. Lows = 9 or less. 550 students originally tested

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: 2 groups: (1) Ss asked to wait 2 minutes but not told would be taking an IQ test. (2) Told would be taking an IQ test but had to wait 2 minutes before starting. High, Low and Median levels of test anxious Ss used.

Group/Individual: individual
Homework Assigned: not relevant

MEASUREMENTS

Dependent Variables: The "IQ" test was a difficult version of Digit Symbols. Main dependent variables were Digit Symbol performance and time estimate.

Followup: no
Check on Homework: not relevant

RESULTS No sex differences found. For time estimates, High TA Ss overestimated time sign. more when they were from Group 2 (Achievement) than High TA Ss from Group 1 (Neutral). Low TA Ss performed sign. better than Medium and High TA Ss on the Digit Symbols task.

Statistics Used: ANOVA

OTHER ISSUES

Attrition: no
Incentives to Ss: not mentioned
Methodological Problems:

CONCLUSIONS/IMPLICATIONS

"High test anxious Ss experience cognitive interference and preoccupation that makes time pass slowly and results in poor performance." Suggests a program with a cognitive component is crucial.

AUTHOR(S): Sarason & Stoops (1978) continued

TITLE:

SOURCE:

SUBJECTS

Sex: 60 males, 60 females

Volunteer/Psychology students: Psychology students

Number: 120

ID of controls: same

Criteria for inclusion in study: TAS (upper, middle and lower 1/3)

TREATMENT/INTERVENTION

Number of sessions: one

Length of sessions: not mentioned

Special instructions/rationale:

Methods/Intervention: 2 Instructions (hard, easy) by 3 Test Anxiety (high, medium, low). All groups were asked to wait 4 minutes while they anticipated taking an IQ test.

Group/Individual: individual

Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. Digit Symbol 2. Time Estimates

Followup: no

Check on Homework: no

RESULTS

High TA Ss made longer time estimates than Medium TA Ss and Low TA Ss. On Digit Symbol, High TA Ss did significantly poorer than Low TA Ss and Medium TA Ss.

Statistics Used: ANOVA

OTHER ISSUES

Attrition: no

Incentives to Ss: not mentioned

Methodological Problems:

CONCLUSIONS/IMPLICATIONS

Test anxiety seems to affect an individual's perception of time. However, there was no Test Anxiety by Instructions interaction as predicted.

AUTHOR(S): Sarason and Stoops (1978) continued

TITLE:

SOURCE:

SUBJECTS

Sex: 60 females
Volunteer/Psychology students: Psychology students
Number: 60
ID of controls: same
Criteria for inclusion in study: Upper, middle, and lower 15% on TAS

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: Ss took a 4 min. Digit Symbol test. Then had to wait 4 mins. Next, under either achievement-oriented or neutral instructions, Ss completed an anagrams test. Finally, Ss reported on cognitive activity while taking the anagrams task.

Group/Individual: individual
Homework Assigned: not relevant

MEASUREMENTS

Dependent Variables: 1. Time estimates 2. Digit Symbol 3. Anagram Performance
4. Report of cognitive activity during test

Followup: no
Check on Homework: not relevant

RESULTS

For time estimates, High TA Ss overestimated significantly more than did Low and Medium TA Ss. On the Anagrams test, High TA Ss did significantly worse than both Low and Medium TA Ss. High TA Ss reported more interfering cognitions than did Low and Medium TA Ss.

Statistics Used: ANOVA

OTHER ISSUES

Attrition: no
Incentives to Ss: not mentioned
Methodological Problems:

CONCLUSIONS/IMPLICATIONS

Support for a cognitive interference theory of test anxiety.

AUTHOR(S): Smith, R. E., Ascough, J. C., Ettinger, R. F., & Nelson, D. A.
TITLE: Humor, anxiety, and task performance
SOURCE: Journal of Personality and Social Psychology, 1971, 19(2), 243-246.

SUBJECTS

Sex: 109 males, 106 females
Volunteer/Psychology students: undergraduate psychology course
Number: 215
ID of controls: same
Criteria for inclusion in study: TAS - Ss divided into low (3-10), moderate (11-16) and high (17-36)

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: unknown
Special instructions/rationale: not mentioned

Methods/Intervention: Half the subjects received a class examination with humorous items included and half the subjects received the class examination without humorous items.

Group/Individual: group
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. Subject's score on class examination (humorous items counted towards total score).

Followup: no
Check on Homework: no

RESULTS

No significant main effect for humor. Anxiety x Humor effect ($p < .01$) - in the nonhumorous condition, the high anxiety group performed at a significantly ($p < .05$) lower level than did either the low or moderate TAS groups. In humor condition high TAS Ss did not differ from other subjects.

Statistics Used: 2 x 3 ANOVA, Duncan multiple-range procedure

OTHER ISSUES

Attrition: unknown
Incentives to Ss: score on exam would count for 50% of course grade.
Methodological Problems: No control for studying or ability. No initial check for ability differences between groups.

CONCLUSIONS/IMPLICATIONS

Not clear what role humor plays - found low level of performance by moderate test anxious group in humorous condition, but high test anxious subjects performed same as others in that condition.

AUTHOR(S): Snider, J. G. & Oetting, E. R.
TITLE: Autogenic training and the treatment of examination anxiety in students
SOURCE: Journal of Clinical Psychology, 1966, 22, 111-114.

SUBJECTS

Sex: 12 males
Volunteer/Psychology students: volunteers
Number: 12
ID of controls: none
Criteria for inclusion in study: MMPI, interview

TREATMENT/INTERVENTION

Number of sessions: six
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: Autogenic relaxation training for all-Ss.

Group/Individual: group
Homework Assigned: 10-20 minutes twice daily practice.

MEASUREMENTS

Dependent Variables: No formal measures were used, only informal self-report.

Followup: grades were assessed later in the year
Check on Homework: not mentioned

RESULTS

Ss reported less general anxiety as well as less anxiety related to tests and other specifics. Grades improved over the year (from an average of C+ to an average of B+).

Statistics Used: none

OTHER ISSUES

Attrition: none mentioned
Incentives to Ss: not mentioned
Methodological Problems: No controls, no formal measures, low N, only males.

CONCLUSIONS/IMPLICATIONS

One of the first studies reporting a variant of relaxation training, autogenic training, as effective with examination anxiety. Very weak study, methodologically, however.

AUTHOR(S): Snyder, A. L. & Deffenbacher, J. L.
TITLE: Comparison of relaxation as self-control and systematic desensitization in the treatment of test anxiety
SOURCE: Journal of Consulting and Clinical Psychology, 1977, 45(6), 1202-1203.

SUBJECTS

Sex: unknown
Volunteer/Psychology students: college student volunteers
Number: 43 chosen from 350
ID of controls: waiting list
Criteria for inclusion in study: Achievement Anxiety Test - Debilitating Scale - upper 15% (scores greater than 30)

TREATMENT/INTERVENTION

Number of sessions: six
Length of sessions: 1 hour - twice weekly
Special instructions/rationale: not given

Methods/Intervention: 1. Relaxation as self-control 2. Desensitization 3. Waiting list control

Group/Individual: group
Homework Assigned: for relaxation condition - told to relax and imagine scenes

MEASUREMENTS

Dependent Variables: 1. AAT (pre-post) 2. Fear Inventory 3. IPAT Anxiety Scale
4. Worry-Emotionality Scale (after high stress instructions) 5. Sarason anagrams
6. Task ratings on anxiety, self, ability, task pleasantness (post only)
Followup: none
Check on Homework: none

RESULTS

Treatment related change: Pre-post differences as follows: Debilitating anxiety ($F = 11.81, p < .001$); facilitating anxiety ($F = 3.68, p < .05$); worry test anxiety ($F = 9.64, p < .001$); and state test anxiety ($F = 8.26, p < .001$). Post test ratings - between group differences on anxiety ($F = 13.34, p < .01$); self ($F = 6.77, p < .01$); ability ($F = 6.58, p < .01$); and pleasantness ($F = 5.81, p < .01$) - treatment groups gave better self reports.

Statistics Used: Analysis of covariance

OTHER ISSUES

Attrition: unknown
Incentives to Ss: unknown
Methodological Problems: Placebo control might have assessed differences due to general expectancy.

CONCLUSIONS/IMPLICATIONS

Desensitization and relaxation as self control both did better than controls - but did not differ from each other. Differences were in self report measures but not performance measures (Sarason anagrams).

AUTHOR(S): Spiegler, M. D., Cooley, E. J., Marshall, G. J., Prince, H. T., & Puckett, S. P.
TITLE: A self-control versus a counterconditioning paradigm for systematic desensitization: An experimental comparison
SOURCE: Journal of Counseling Psychology, 1976, 23(1), 83-86.

SUBJECTS

Sex: 22 males, 25 females
Volunteer/Psychology students: Psychology Ss
Number: 47
ID of controls: same
Criteria for inclusion in study: 16-item TAS (had to score 7 or above)

TREATMENT/INTERVENTION

Number of sessions: 8 biweekly
Length of sessions: 50 minutes
Special instructions/rationale:

Methods/Intervention: 1. Self-control SD 2. Traditional SD 3. Waiting List
Control (for trad. SD all hierarchy items related to TA. For self-control SD, only 4 of 24 did)

Group/Individual: group
Homework Assigned: yes - trad. asked to practice relaxing, self-control Ss asked to apply relax. wherever felt tense.

MEASUREMENTS

Dependent Variables: 1. TAS 2. FSS Both were administered 4 weeks prior and 8 weeks after treatment. Ss didn't know they were associated with study.
3. Stress measure while watching a film on test anxiety (pre-post)
Followup: eight weeks
Check on Homework: yes

RESULTS

While self-control reported less TAS anxiety than traditional, the diff. was not significant. Self-control significantly less anxious than control. No significant difference between traditional and control on TAS. Same findings for FSS although not significant as well as the stress measure.

Statistics Used:

OTHER ISSUES

Attrition: 5 of 47
Incentives to Ss: credit
Methodological Problems: Only used male therapists, didn't analyze for sex differences. The entire 24-item hierarchy was not completed because of time constraints. Needed more sessions.

CONCLUSIONS/IMPLICATIONS

Self-control reduced TA greater than traditional SD, even though only include 16% of hierarchy items that related to test anxiety.

AUTHOR(S): Spiegler, M. D., Morris, L. W. & Liebert, R. M.
TITLE: Cognitive and emotional components of test anxiety: Temporal factors
SOURCE: Psychological Reports, 1968, 22, 451-456.

SUBJECTS

Sex: unknown
Volunteer/Psychology students: two undergraduate psychology classes
Number: 71
ID of controls: none
Criteria for inclusion in study: none

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: unknown
Special instructions/rationale: unknown

Methods/Intervention: TAQ given right before and after an exam for a course

Group/Individual: group
Homework Assigned: none

MEASUREMENTS

Dependent Variables: 1. TAQ (pre-post) 2. One question about how S expected to do on exam

Followup: none
Check on Homework: none

RESULTS

Emotionality scores lower after exam ($p < .001$). No significant difference pre and post worry scores. Reported emotionality and expectancy scores negatively correlated ($p < 0.25$) and worry and expectancy scores negatively correlated ($p < .05$).

Statistics Used: t tests, Pearson Product

OTHER ISSUES

Attrition: unknown
Incentives to Ss: unknown
Methodological Problems: No controls. Same questions given on TAQ within a short amount of time. Results confounded by ability and preparation for course exam. Also knew professor would see TAQ.

CONCLUSIONS/IMPLICATIONS

AUTHOR(S): Spiegler, et al.

TITLE:

SOURCE:

SUBJECTS

Sex: unknown

Volunteer/Psychology students: first year psychology grad students in required course

Number: 21

ID of controls: none

Criteria for inclusion in study: none

TREATMENT/INTERVENTION

Number of sessions: three testing sessions

Length of sessions: unknown

Special instructions/rationale: unknown

Methods/Intervention: TAQ given 5 days before course exam, just before exam
and just after exam

Group/Individual: group

Homework Assigned: none

MEASUREMENTS

Dependent Variables: 1. TAQ

Followup: none

Check on Homework: none

RESULTS

Worry scores remained stable over 3 administrations. Emotionality scores changed ($p < .025$), increased until exam and then dropped right after it. No changes in expectancy over time. No relationship between changes in expectancy and either changes in worry or emotionality scores.

Statistics Used: ANOVA

OTHER ISSUES

Attrition: unknown

Incentives to Ss: unknown

Methodological Problems: No controls. No inclusion criteria. Gave same questions three times in 6 days. E not blind. Confounded by preparation for exam.

CONCLUSIONS/IMPLICATIONS

Authors conclude that emotionality is a function of immediate stressful circumstances and worry is not.

AUTHOR(S): Thompson, J. G., Griebstein, M. G., Kuhlenschmidt, S. L.
TITLE: Effects of EMG biofeedback and relaxation training in the prevention of academic underachievement
SOURCE: Journal of Counseling Psychology, 1980, 27(2), 97-106.

SUBJECTS

Sex: females
Volunteer/Psychology students: college freshmen volunteers
Number: 30
ID of controls: same (although not contacted until last week of study)
Criteria for inclusion in study: volunteered, AAT scores

TREATMENT/INTERVENTION

Number of sessions: twelve over six weeks
Length of sessions: thirty minutes
Special instructions/rationale:

Methods/Intervention: 1. Anxiety Management Training (AMT) 2. AMT plus biofeedback
3. Stress Management Training (SMT) 4. SMT plus biofeedback 5. No treatment control

Group/Individual: individual and group
Homework Assigned: yes

MEASUREMENTS

Dependent Variables: 1. AAT 2. Eysenck Personality Inventory (EPI) 2. STAI 4. Weekly checklist log 5. Somatic/cognitive anxiety frequency questionnaire 6. Somatic/cognitive anxiety intensity questionnaire 7. EMG 8. GPA

Followup: yes - three months
Check on Homework: yes

RESULTS Groups = on all pretest measures. On STAI (state), all 4 E groups were less anxious than Controls. No diff. on STAI (trait). On Somatic/cognitive intensity scale, E groups reported less intensity than Controls. E Ss maintained chances over follow-up on self-report measures. All Ss showed lower EMG at post regardless of whether had received biofeedback. Control group had lower GPA at post and followup.

Statistics Used: 2 x 2 plus 1 factorial ANOVA

OTHER ISSUES

Attrition: 1 of 20 E Ss
Incentives to Ss:
Methodological Problems: Used control group just during last week.

CONCLUSIONS/IMPLICATIONS

This study is one of very few which demonstrated that treatment effects persisted over a follow-up period. Both treatments reduced both cognitive and somatic anxiety. "...Results do not support the hypothesis that different treatments are required for somatic and for cognitive anxiety." "...Somatic and cognitive symptoms interact in a reciprocal fashion and that a decrease in either produces a general reduction in both." Relaxation techniques were more effective at reducing state anxiety than trait anxiety. EMG biofeedback did not augment the results already achieved by AMT or SMT. "...EMG biofeedback may at least temporarily interfere with learning to use relaxation as a coping response."

AUTHOR(S): Weiner, M. J. & Samuel, W.
TITLE: The effect of attributing internal arousal to an external source upon test anxiety and performance
SOURCE: The Journal of Social Psychology, 1975, 96, 255-265.

SUBJECTS

Sex: 33 males, 45 females
Volunteer/Psychology students: Psychology Ss
Number: 78
ID of controls: same
Criteria for inclusion in study: Alpert-Haber median split, median = 9-10

TREATMENT/INTERVENTION

Number of sessions: one
Length of sessions: not mentioned
Special instructions/rationale:

Methods/Intervention: 2 Test Anxiety (high & low) by 3 Attribution (pill attribution, pill-no attribution, no pill control)

Group/Individual: groups of approximately 9
Homework Assigned: no

MEASUREMENTS

Dependent Variables: 1. Alpert-Haber 2. Self Report of Anxiety 3. Anagram task (under high evaluation instructions) 4. Symptom checklist ("State of Being")
Followup: no
Check on Homework: no

RESULTS

Pill attribution group reported less anxiety and symptoms than the pill-no attribution group which report less anxiety and symptoms than the no pill control. Nearly sign. anagrams diff. such that the pill attribution group did better than the pill-no attribution group. The attribution effect was stronger for high TA Ss than low TA Ss.

Statistics Used: Analyses of variance

OTHER ISSUES

Attrition: none
Incentives to Ss: course credit
Methodological Problems:

Median split of TA didn't reach significance, so used only upper and lower 1/3 of population - possible regression effects.

CONCLUSIONS/IMPLICATIONS

Since pill attribution Ss could attribute their physiological arousal to the pill, they viewed it as less debilitating (self report measures) but performance effects were very weak. Support for cognitive component of TA.

AUTHOR(S): Wickramasekera, I. (CASE STUDY)
TITLE: Instructions and EMG feedback in Systematic Desensitization: A case report
SOURCE: Behavior Therapy, 1972, 3, 460-465.

SUBJECTS

Sex: female - 42 years old
Volunteer/Psychology students:
Number:
ID of controls:
Criteria for inclusion in study: Afraid to take the GED exam - dropped school in the 7th grade because of fear of exams.

TREATMENT/INTERVENTION

Number of sessions: 3, 60-90 minutes and 3 sessions with paraprofessional
Length of sessions:
Special instructions/rationale: Given written instructions and rationale for desensitization and shown videotape.
Methods/Intervention: Used EMG to determine when relaxed and then during desensitization told when to stop visualizing.

Group/Individual: individual
Homework Assigned: Told to come to clinic every day for 30 minutes to work alone with machine and told must practice at home.

MEASUREMENTS

Dependent Variables:
Stanford Hypnotic Susceptibility Scale - Form A (pre and post)

Followup: no
Check on Homework: Told S that the equipment showed E how much she was practicing at home.

RESULTS

Reported no symptoms when she took the Civil Service Exam.
Frontalis EMG levels decreased over ten sessions.

Statistics Used: none

OTHER ISSUES

Attrition:
Incentives to Ss:
Methodological Problems: No controls, rationale for dependent measure used unclear.

CONCLUSIONS/IMPLICATIONS

Unusual because S was almost self-taught and self-trained.
Very little E involvement.

AUTHOR(S): Zemore, R.
TITLE: Systematic desensitization as a method of teaching a general anxiety-reducing skill
SOURCE: Journal of Consulting and Clinical Psychology, 1975, 43(2), 157-161.

SUBJECTS

Sex: 20 males; 20 females
Volunteer/Psychology students: Psychology Ss
Number: 40
ID of controls: same
Criteria for inclusion in study: Fear Survey Schedule for both public speaking and test anxiety

TREATMENT/INTERVENTION

Number of sessions: eight (twice weekly)
Length of sessions: 45 minutes
Special instructions/rationale: Told that intent of study was to study generalizability
Methods/Intervention: 1. Goldfried's SD procedure for TA 2. Wolpe's SD procedure for TA 3. Goldfried's SD procedure for public speaking anxiety 4. Wolpe's SD procedure for public speaking anxiety 5. No treatment control

Group/Individual: groups of 4
Homework Assigned: none reported

MEASUREMENTS

Dependent Variables: 1. STABS (pre-post) 2. FSS (pre-post)

Followup: no
Check on Homework: none reported

RESULTS

Both SD procedures were equal and better than the control group for both treated and untreated fears on FSS but no differences among groups on STABS. No sex differences.

Statistics Used: Used 2 x 5 ANOVA instead of 2 x 2 x 2 plus 1

OTHER ISSUES

Attrition: none mentioned
Incentives to Ss: none mentioned
Methodological Problems: Only used self-report measures. Ss told intent of study so effects could have been due to expectancy.

CONCLUSIONS/IMPLICATIONS

Didn't support hypothesis that Goldfried's procedure would generalize better than Wolpe's procedure.

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